5-11-2019

How Will I Afford It? Financial Aid and Its Impact on Higher Education: Evidence from the State of Mississippi

Daria Herasymova
University of Mississippi

HOW WILL I AFFORD IT? FINANCIAL AID AND ITS IMPACT ON HIGHER EDUCATION: EVIDENCE FROM THE STATE OF MISSISSIPPI

by Daria Herasymova

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

Oxford

May 2019

Approved by

_____

Advisor: Professor Bonnie Van Ness

_____

Reader: Professor Andrew Lynch

_____

Reader: Dean Mark Wilder

ABSTRACT

Daria Herasymova: How Will I Afford It? Financial Aid and Its Impact on Higher Education: Evidence from The State of Mississippi
(Under the direction of Dr. Bonnie Van Ness)

The cost of higher education, in real terms, doubled in the last twenty years, increasing faster than medical costs, the consumer price index and housing. In 1987, U.S. Secretary of Education, William J. Bennett, in the New York Times article, raised the concern that financial aid has unintended consequences of enabling higher education institution to increase tuition. In this paper, through collection of data and literature review, I examine the drivers behind the rising cost of higher education and test whether the postsecondary institutions in the state of Mississippi exhibit behavior, consistent with the Bennett Hypothesis. Using fixed-effects regression model, I analyzed data from the Integrated Postsecondary Education Data System (IPEDS), Title IV and Mississippi Office of Student Financial Aid annual reports from 2007 to 2016. I found a positive correlation between Pell Grants and tuition-in-state, subsidized loans and tuition out-of-state, consistent with existing research. In addition, I found a positive correlation between state program MESG and tuition-in-state. However, the results were found to vary based on model specification due to data limitations and omitted variable bias.

TABLE OF CONTENTS

INTRODUCTION……1

CHAPTER I: IS HIGHER EDUCATION WORTH IT?.....3

1.1. Trends in College Enrollment…….3

1.1. The Returns of Higher Education……...7

1.3 Consequences of Student Debt……..13

CHAPTER II: OVERVIEW OF FEDERAL FINANCIAL AID……18

2.1 History of Financial Aid……...18

2.2 The Structure of Financial Aid…….22

2.3 Trends in Financial Aid……26

CHAPTER III: WHY EDUCATION IS SO EXPENSIVE…….28

3.1. Trends in Tuition and Fees……...28

3.2. Drivers of Rising Cost……..…...31

3.3. Price Discrimination……...…… 34

3.4. Financial Aid and College Tuition……...…… 39

CHAPTER IV: EVIDENCE FROM MISSISSIPPI……...…… 45

4.1 Financial Aid in Mississippi…….….45

4.2. Empirical Part……...51

4.2.1. Data……....52

4.2.2. Model Specifications…….…….53

4.2.3. Results……54

4.2.4. Limitations of Findings…….....57

CONCLUSION……...58

BIBLIOGRAPHY……...59

APENDIX……...….65

TABLE OF FIGURES

Figure 1. Enrollment Changes by type, 2014-2017

Figure 2. Enrollment Rate by Income Quintile, 1985-2015

Figure 3. Total Completion Rate for Four-Year Public and Two-Year Public Institutions, 2006-2012

Figure 4. Earnings Distribution of Workers Age 35 to 44, by Education Level, 2015

Figure 5. Median Earnings of Full-Time Workers Age 25 to 34 by Gender and Education Level, 1975- 2015

Figure 6. Unemployment Rates of Individuals Age 25 and older, by education level, 1995 to 2015

Figure 7. Total Student Loan Balance by age group

Figure 8. Financial Aid distribution by Type, 1997-2017

Figure 9. Publishes Tuition and Fees 1988-2018 (2018 Dollars)

Figure 10. Published and Net Tuition and Fees in public (left) and private (right) institutions

Figure 11. College Tuition Inflation

Figure 12. Distribution of Core Spending by Type of College, 2014-2015

Figure 13. Tuition, fees and state appropriations, FTE Enrollment in southern states

Figure 14. Percentage of family income needed to cover net price at public 4-year institution

Figure 15. State Financial Aid in the South

Figure 16. Income distribution of financial aid award recipient

INTRODUCTION

The higher education is crucial to both the individual and economy as a whole. The research efforts of universities contribute to the advancement of the body of knowledge which leads innovation across a variety of industries, including advances in cloud computing, artificial intelligence and, most recently, the very first image of a black hole. On an individual level, higher education is perceived to be a pre-requisite for financial stability and a meaningful career. In recent years, education has become a central topic of discussion amongst the general public, the media and policymakers. Currently, there are discussions on Capitol Hill regarding the reauthorization of the Higher Education Act, that could potentially change the landscape of higher education and financial aid.

In the last twenty years, the cost of higher education has almost doubled and an increasing number of students rely on federal financial aid, which includes student loans, to cover the costs associated with their education. In 2018, the outstanding student debt reached $1.5 trillion, making it the second largest type of consumer debt in the U.S. There is growing concern about the declining affordability of postsecondary education. While there is little disagreement that postsecondary education should be accessible despite the income level, the relationship between financial aid and affordability remains not clear. The focus of this thesis is to examine the current state of higher education, the drivers behind rising costs and, through literature review and empirical study test the Bennett Hypothesis, that states that the increase in financial aid leads to increase in tuition costs.

To understand the connection between financial aid and the cost of higher education, in Chapter I, I start with a discussion of the benefits and consequences of pursuing a postsecondary degree. Understanding the trend of increasing college enrollment

despite the rising cost is key to understanding the need for financial aid. In Chapter II, I provide an overview of the history of financial aid, its current structure and recent trends. In Chapter III, through a collection of data and literature review, I evaluate the drivers behind the rising cost and review what is currently known about the causal relationship between financial aid and tuition. In my final chapter, I contribute to the discussion of the Bennett Hypothesis by conducting an empirical analysis. Using data from the Integrated Postsecondary Education Data System (IPEDS), Title IV and Mississippi Office of Student Financial Aid, I test if higher education institutions in Mississippi exhibit the behavior consistent with the Bennett Hypothesis.

CHAPTER I: IS HIGHER EDUCATION WORTH IT?

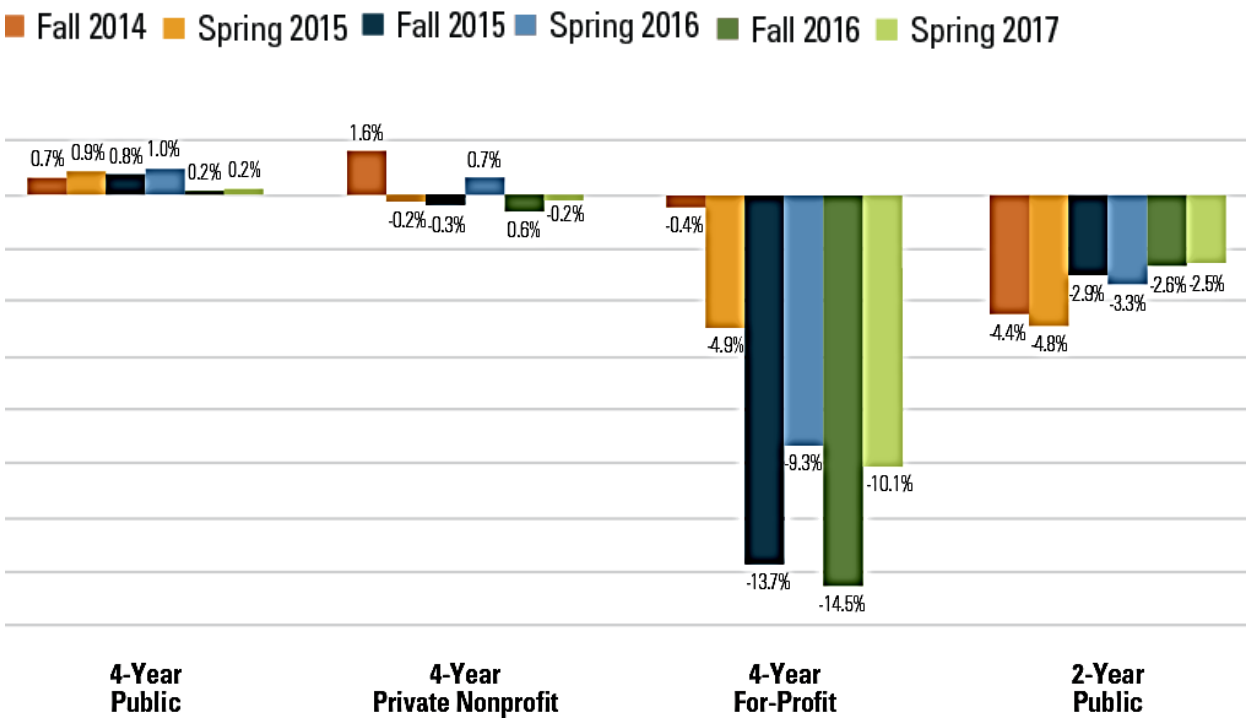
At the heart of the debate over the future of higher education is the question raised in this chapter, is higher education worth it? With the increasing concern over the rise of the cost of education and the increasing burden of student loans, the answer is becoming less clear. Before getting into the discussion of financial aid and the rising cost of higher education, it is important to understand the risks and returns of higher education that future students are faced with when deciding to pursue a degree. In this chapter, I discuss the trends in college enrollment to indicate the rising demand for higher education, followed by a discussion of the returns of higher education and the consequences of the rising balance of student loans.

1.1 Trends in College Enrollment

In the recent decade, there has been a strong thrust among policymakers to increase the accessibility of higher education. Barnie Sander's College for All Act, that proposes to eliminate tuition, is currently debated across the nation (Associated Press, 2016). A study by Claudia Golding and Lawrence F. Katz links the changes in wage inequality with the changes in the higher education system. (Golding and Katz, 2007) The authors explain the increase in income inequality, that began in the early 1970s, by the inability of higher education institutions to keep up with the advancements in modern technology. As Golding and Katz phrase it, "The bottom line here is that labor-market

based efforts to reduce inequality depend on increasing the supply of educated workers." Their argument has been often cited in favor of expanding the financial aid policy and the increase in subsidies through grants and loans. In this section, to further understand financial aid, I will discuss the recent trends of college enrollment.

Figure 1. Enrollment Changes by type, 2014-2017

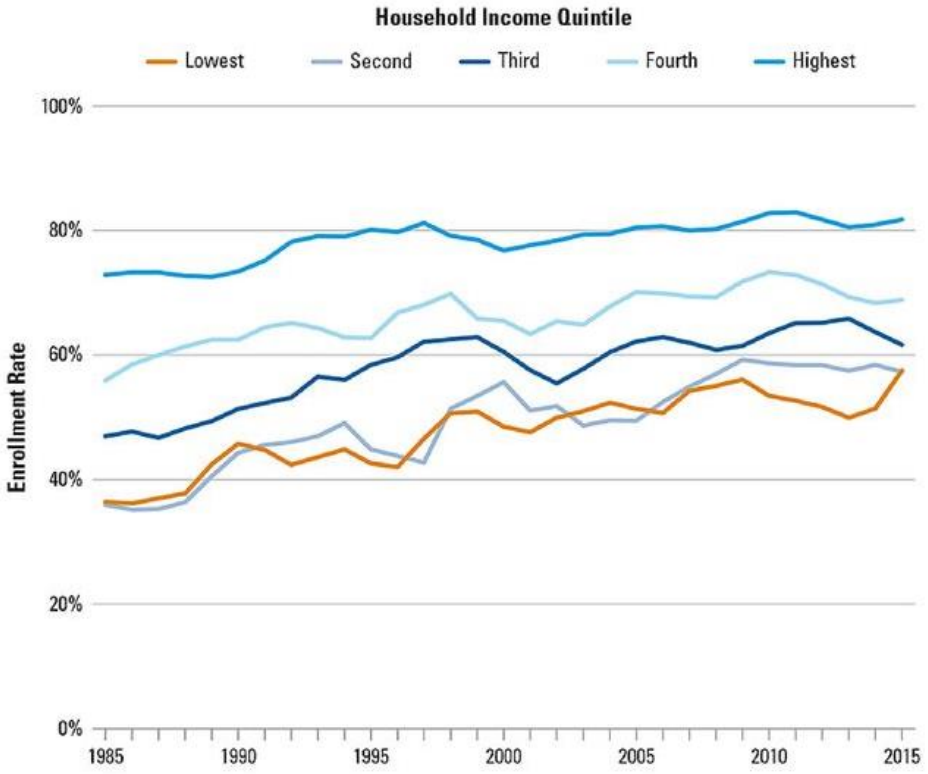


Source: "Term Enrollment Estimates, Spring 2017," National Student Clearing House Research Center

Figure 1 depicts the recent change in enrollment numbers by the higher education sector between 2014 and 2017. The data collected by the National Student Clearinghouse Research Center includes 97 percent of U.S. Title IV, degree-granting institutions. Enrollment increased only at 4-Year public institutions by less than one percent. In spring 2017, enrollment increased by only 0.2 percent, compared to the

decrease in enrollment at for-profit institutions (-10.1%). In fact, according to 2017 Survey of Admissions Directors, only 3 percent of postsecondary institutions have met their annual enrollment goals (Jaschik and Lederman 2017). The institution's own failures to achieve their growth numbers is an important factor in the grander discussion of institutions' incentives to raise tuition rates, discussed later.

Figure 2. Enrollment Rate by Income Quintile, 1985-2015

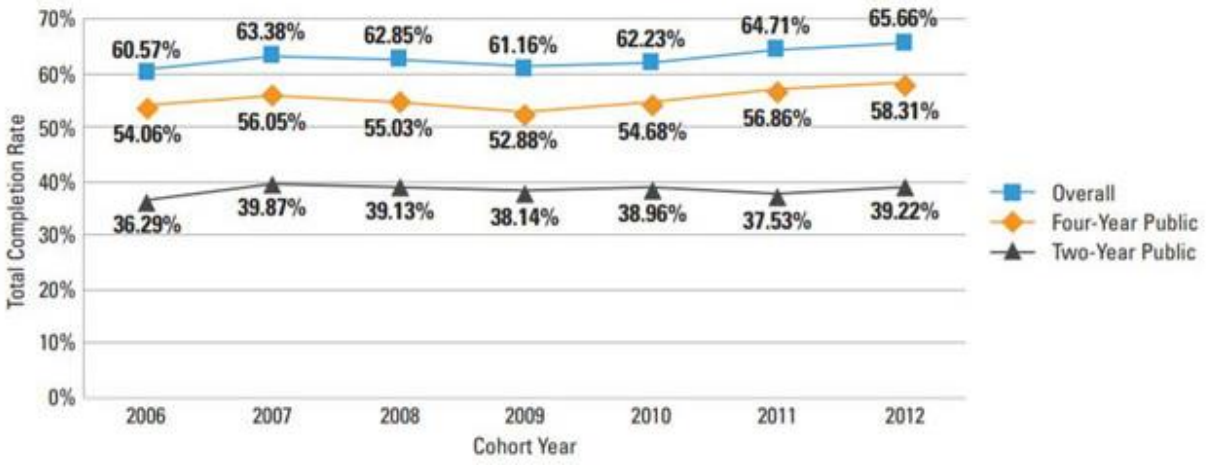


Source: The College Board, "Education Pays 2018"

Figure 2 shows the trend in college enrollment rates. The graph, taken from the College Board report "Education Pays 2018", illustrates the percentage of recent high school graduates enrolled in a postsecondary institution based on the students' household income quantile. The trend has clearly been positive in growth with some fluctuations. Interestingly, while every income quartile has benefitted with positive

growth in their respective percentages of enrollment, it is striking how dependent a student's household income corresponds to their likelihood of post-secondary enrollment. Simply, the higher a household's income, the higher the higher the enrollment rate. In 2015, 58 percent of recent high school graduates from the lowest income quantile (below $20,582) enrolled in postsecondary institutions, compared with 62 percent students - from the middle-income quantile ($37,000 to $60,300). Between 1990 and 2015, student enrollment from the second lowest and the lowest income quantiles, experienced the highest percentage point changes, increasing by 13 percent and 12 percent, respectively. Upward enrollment rate does not necessarily indicate an increasingly educated workforce because "enrollment" does not mean graduation or account for taking time off, switching areas of study, drop-outs, transfers, etc. Thus, I am including a discussion of the trend in retention and graduation rates.

Figure 3. Total Completion Rate for Four-Year Public and Two-Year Public Institutions, 2006-2012



Source: The College Board, "Education Pays 2018"

Figure 3 shows the changes in completion rates by two-year and four-year public institutions. According to College Board, the completion rate of the 2012 cohort is

65.66 percent, which means that over 65 percent of the students that started their postsecondary education in 2012 graduated within six years. The graduation rate increased moderately, from 54.06 percent to 58.31 percent for four-year public institutions and from 36.29 percent to 39.22 percent for two-year public institutions, over the period of 2006-2012. It became a standard practice to measure a graduation rates at four-year institution on a six-year basis. Enrolling in four-year college, students and their families do not usually anticipate the additional expenses. It was estimated that the cost of each additional year at 2-year colleges is $50,933 and $68,153, including the loss in wages (Complete College America, 2014).

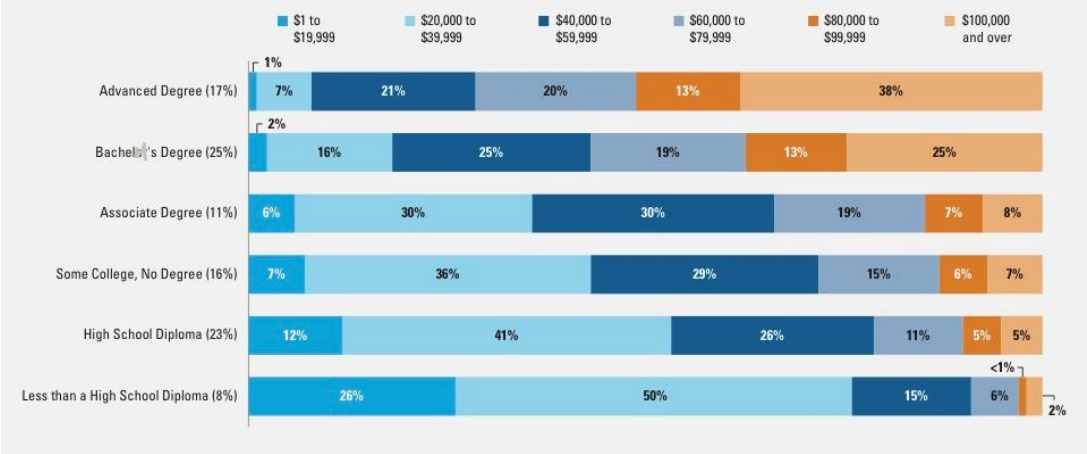
For 2010 cohort, the official four-year graduation rate was 35.5 percent among public colleges and universities and 53.5 percent among non-profit universities and colleges (National Center for Educational Statistics, 2017). At my alma mater, the University of Mississippi, for 2014 cohort year, 48.3 percent of students graduated on time. (The University of Mississippi, 2018). This means that the majority of students enrolled in the higher education institutions, are faced with additional tuition and living expenses beyond four years, in addition to acquiring additional interest on loans for student borrowers.

1.2. The Returns of Higher Education

With a significant annual increase in the price of higher education each year, students must determine if getting a degree is worth the investment, and, in a lot of cases, if it is worth taking on student debt to afford going to college. Generally, students pursue higher education with the expectation of becoming more valuable in the labor market and of earning higher wages in the future. Indeed, the research confirms that, on average,

college graduates earn $1 million dollars more than high school graduates over the period of their lives. According to the U.S. Labor Department, individuals who have an undergraduate degree earn approximately 98 percent more per hour than people with high school diploma. Among the advance-degree holders, 38 percent earn annually $100,00 or higher, compared to 25 percent among bachelor's holders and only 5 percent among high school graduates (College Board, 2016). However, as Figure 4 shows, according to College Board, the expected earnings increase with the level of education, but within each level of education, there is a significant variation in earnings. This variation may be partially explained by the variation in occupation, location, and demographics. Even though a college degree yields considerable earnings boost over the course of life, the returns on higher education are highly volatile and depend on a range of factors.

Figure 4. Earnings Distribution of Workers Age 35 to 44, by Education Level, 2015

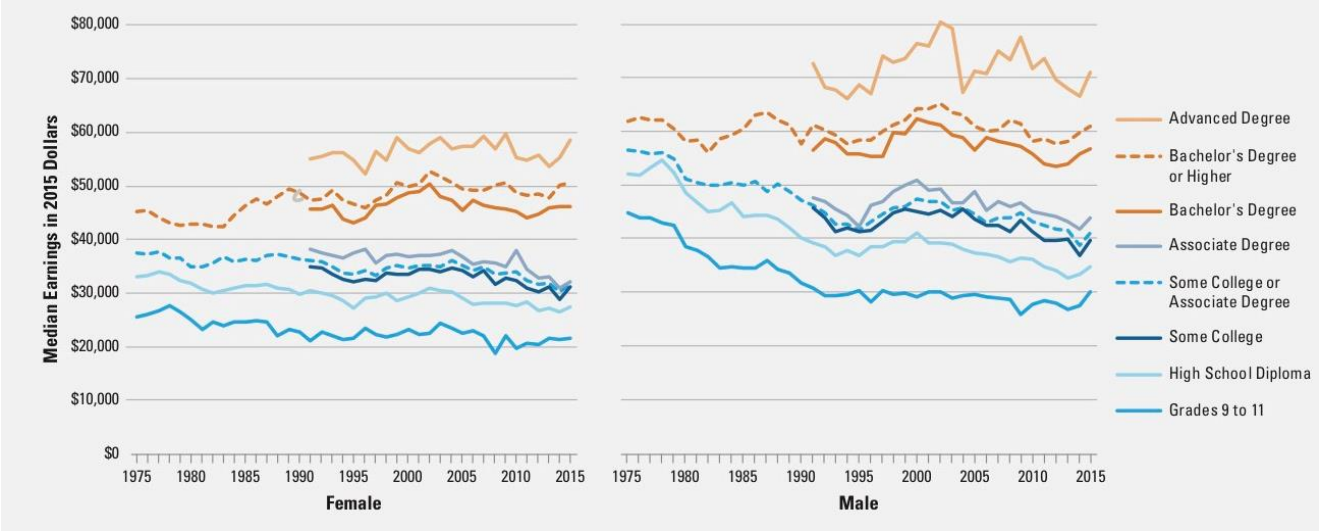


Source: College Board: "Education Pays 2016"

The expected earnings vary dramatically by institution and major. It is logical to expect the student, who majors in aerospace engineering or computer science, to have higher returns on his or her investment than the student majoring in music or education, all

else being equal. Likewise, the graduate from Harvard University is likely to have a higher income, compared to a student who attended a subpar state school. Interestingly, research has shown that students who qualify to go to prestigious colleges but choose not to, decrease their projected income, despite the potential student debt. (Bowen, Chingos, and McPherson, 2009).

Figure 5. Median Earnings of Full-Time Workers Age 25 to 34 by Gender and Education Level, 1975- 2015



Source: College Board: "Education Pays 2016"

The demographics of the student plays an important role in determining their earnings trajectory. The gender wage gap is widely recognized and has been extensively researched. Female students, all else being equal, can expect lower income than their male peers. Female students account for roughly 56 percent of college students across the nation, but their future salaries do not reflect their proportion of enrollment. According to research by Georgetown University's Center on Education and the Workforce, a woman with a bachelor's degree, on average, has roughly the same income as a man with an associate

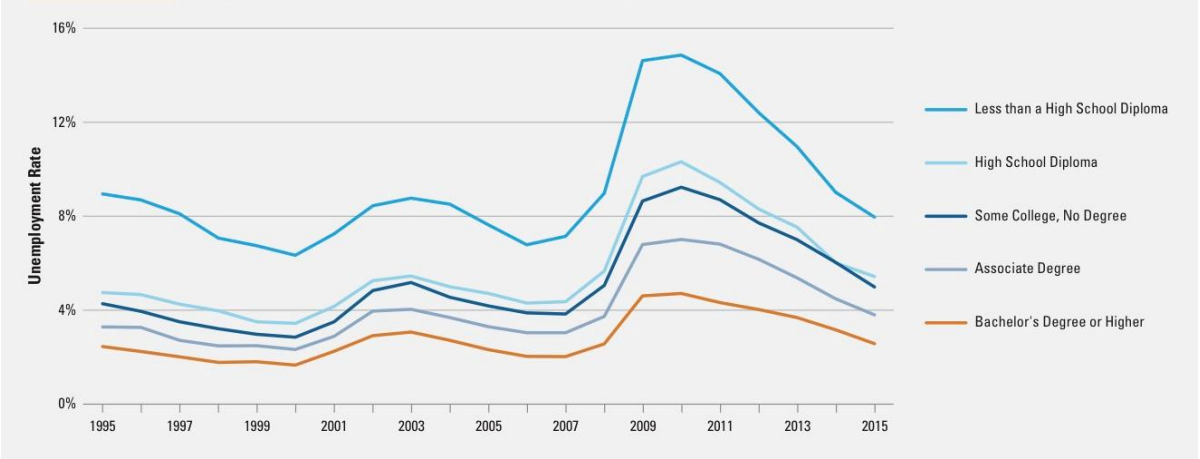
degree (Carnevale et.al, 2017). Figure 5, taken from College Board report, illustrates that men have been consistently earning higher salaries across all educational levels, the same is true across all occupations and industries. For example, women with STEM degrees earn roughly 20 percent less than their male peers. Similarly, there is a wage gap among minority groups (Carnevale et.al., 2018).

The intangible social returns received from pursuing higher education should not be discounted. Research suggests that college graduates are healthier (Mirowski and Ross, 2003), have more stable marriages (Schwartz, 2010) and are more likely to be involved in civic engagement (Brand, 2010). By pursuing an undergraduate degree, college students are not only receiving a valuable skill set and knowledge that are essential to succeed in the current labor market, but also gain interpersonal skills and values that benefit their personal lives. In addition to economic and social benefits amassed by individuals pursuing higher education, the increase in the percentage of the population who are educated has a positive impact on the local and national economy. Research suggests that a more educated a society results in lower crime rates (Lochner and Moretti, 2003) and increased productivity rates (Kampelmann et.al., 2018). As more individuals go to college, increasing their projected lifetime income, more tax revenue becomes available for states to collect and utilize, which is one of the incentives states have to continuously invest in higher education.

According to the College Board, the average tax revenue in 2015 from individuals with high school diplomas was $5,200; associate degree holders - $10,100; bachelor's degree graduates - $14,500, and $28,900 for professional degree holders. States have an interest in increasing access to higher education and sponsoring state programs to provide

opportunities to financially- disadvantaged students (College Board, 2016). It was estimated that, in Texas, every $1 invested in higher education yielded a $4 combined benefit (Murdock et. Al, 2003). A decrease in unemployment is also often cited as a social benefit of higher education. The unemployment rates, reported by College Board, shown by Figure 6, for the individuals with bachelor's degrees or higher are half that of high school graduates.

Figure 6. Unemployment Rates of Individuals Age 25 and older, by education level, 1995 to 2015



Source: College Board: "Education Pays 2016"

The decision to pursue higher education is an investment and, as such, needs to be treated seriously by students, considering possible benefits and costs. While there are undeniable benefits to pursuing a higher education, discussed above, the return on investment varies across institutions, majors and demographics. Students should take a variety of factors into consideration in order to make an informed investment decision, a decision that may unlock a higher lifetime earning potential or be a reason for lifelong financial ruin.

There is a growing body of research that suggests that obtaining a higher education, financed by student loans, doesn't yield in a significant increase in earnings capable of justifying the cost of debt. Today, about 44 million people hold at least some form of federal student debt, and the average student owes $37,172 by the time he or she graduates (Associated Press, 2019). A recent paper published by the Roosevelt Institute argues that current higher education policy is "based on the flawed assumptions about the individual and economic benefits of debt-financed education, [that] only continue to fuel credentialization." Based on their analysis of Current Population Survey data, jointly collected by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics, the authors concluded that the income distribution has not changed over eighteen last years in the face of an increasing percentage of the population attaining higher education. Worse, the student debt burden has significantly increased, while wages have remained stagnant or have fallen. The "premium" placed on college is the result of the decrease in wages for workers with only a high school diploma relative to the earnings of individuals with college credentials. The cost of not having a degree has significantly increased. (Morgan and Steinbaum, 2018). In other words, higher education has become a prerequisite to getting the same job that a previous generation was not required to possess. Employers, at no cost to themselves, now have the leverage to demand higher academic credentials from potential employees. The analytics software company, Burning Glass Technologies, analyzed job advertisements across 40,000 websites to determine the shifts in the labor market. In their report, they documented the evidence for credential inflation. For example, 65 percent of job postings looking for secretaries and assistants are now list a bachelor's degree as a requirement, even if only 19 percent of the current employees hold an advanced degree

(Burning Glass, 2014). The increase of credentialization is not the problem, the problem is the side-effects credentialization has on the labor market and employees. The issue lies in the resulting consequence: in order to receive the prerequisite of higher education, students are increasingly relying on student loans to finance their education and a growing percentage of the borrowers are not able to repay the loans. Each year, more than a million borrowers default on their student loans. Further, it is forecasted, that by 2023, forty percent of student loan holders will default (Urban Institute, 2018). In the next section, I will discuss the consequences of defaulting on student loans to further illuminate the problem of raising tuition and fees.

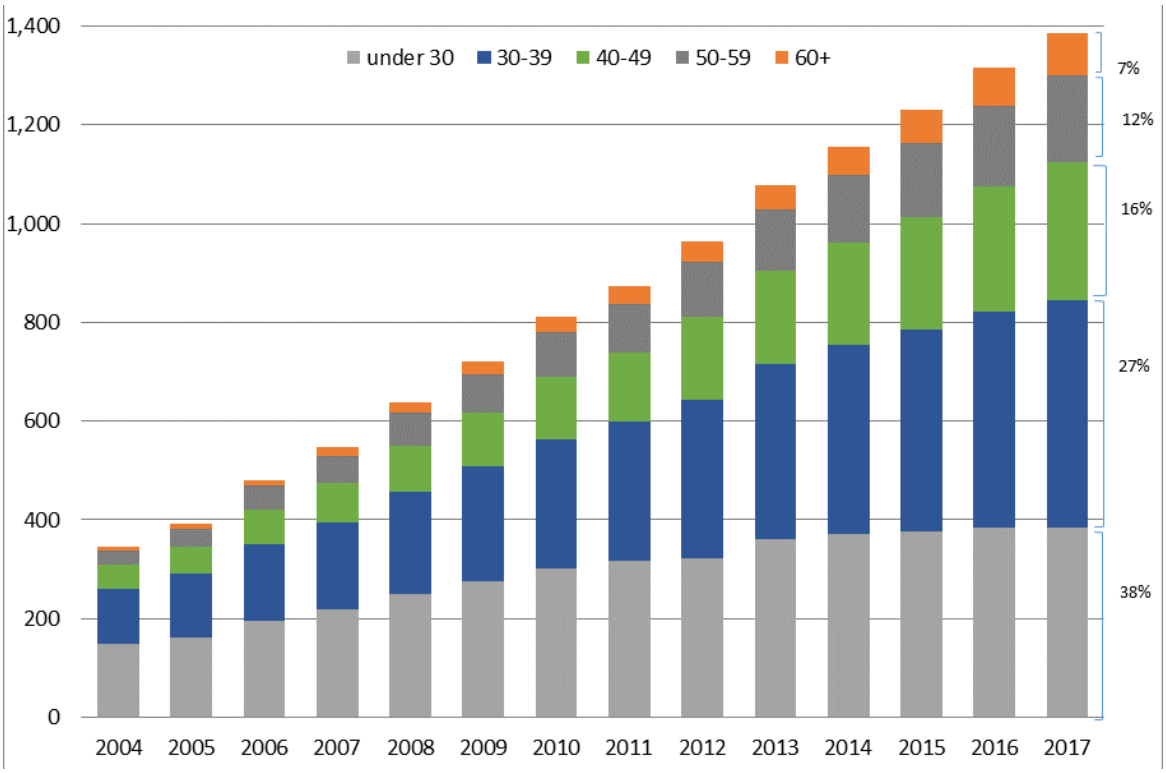
1.3. Consequences of the Student Debt

As of 2018, according to the Federal Reserve, outstanding student debt totaled $1.5 trillion, shared between 44.2 million borrowers – a 33 percent increase in just a five-year period. Roughly one-quarter of the population used student loans to some extent to cover the cost of higher education. The average student in 2017 graduated owing $37,172 (America's Debt Help Organization, 2019). The growth in student loans is attributed to the increase in the number of borrowers and the rising average amount borrowed. In the 1989-90 academic year, about 50 percent of students graduated with an average balance of $15,200 in student loans (Velez and Woo, 2017). In 2012, 68 percent of students relied on student loans with an average loan amount of $26,300. Today, over 70 percent of college students use student loans to at least partially cover the cost of higher education. Student loans help to lift the credit restrictions for individuals to pursue higher education and enable them to access better opportunities in a labor market that they otherwise would not have. According to economic theory, the growing debt balance is justified and encouraged as

long as the returns on the investment are higher than the cost of debt. In other words, it is implied, that by having access to student loans, individuals are able to receive an education that enables them to have sufficient earnings to pay off their loans over time with additional earnings to improve their standard of living, that would not be otherwise possible if they entered the workforce after graduating high school. For that reason, the default rates on student loans are alarming. The Department of Education defines default as a failure to make any payment towards the principal or interest on the loan for 270 consecutive days (Federal Student Aid, 2019). In 1990, the default rates hit their highest of 22.4 percent, after which the government passed legislation to restrict federal funding to institutions whose default rates are below 30 percent (Omnibus Budget Reconciliation Act of 1990), that resulted in more than 1,000 institutions to be excluded from receiving federal aid. Further, the government has taken additional steps to make it easier for students to repay their student debt. Today, students are able to take advantage of repayment plans and deferment options. For example, individuals with incomes below 150 percent of the federal poverty level, through an income-driven repayment plan, are allowed to make zero payments and still not default on their loans (Federal Student Aid, 2019). Despite all government efforts, students are continuously defaulting on their loans, with the current default rate of 11.4 percent (Federal Reserve Bank of New York, 2018). Recent estimates suggest that over seven million students are in default on their student loans, which collectively totals out to $103 billion. According to the report by Urban Institute, by analyzing the trends of default rates over 20 years, it was forecasted that 40 percent of borrowers will default on student loans by 2023 (Urban Institute, 2018)

Research suggests that growing national student debt and the increase in the number of individuals who default on their federal student loans has devastating effects on the economy. According to research by the Urban Institute, a one percent increase in student debt decreases the probability of owning a house by 15 percent. 83 percent of adults ages 22 to 35 with student debt, who do not own a house, cite student loan payments to be the main obstacle in homeownership. 1/5th of individuals with student debt who applied for mortgages were denied based on their debt-to-income ratio. (National Association of Realtors, 2017). The average household must save 20 percent of their monthly salary for 6.5 years to be able to afford the down payment on a house (HotPads, 2018).

Figure 7. Total Student Loan Balance by age group



Source: New York FED Consumer Credit Panel

A study conducted by the Center for Retirement Research at Boston College, found that by the time an individual reaches the age of 30, those without student loans are forecasted to have double the amount of savings for retirement (Rutledge et.al, 2018). Among individuals who have student loans at age 30, regardless of the amount borrowed, will accumulate approximately the same amount of savings. The study concluded that student loan borrowers prioritize payment of student loans over savings and significantly decrease the rate of retirement savings. Figure 7, taken from Federal Reserve of New York, shows the average student loan debt by age. Interestingly, since 2014, student loan debt for borrowers 60 and over has increased by over 1200% and in 2017 amounted to around $98 billion.

Student debt recently reached $1.5 trillion and is now the second largest category of household debt, after mortgages (Federal Reserve Bank of New York). Growing student debt hinders both the financial stability of households and has a spillover effect on the entire economy, decreasing aggregate consumption and investment (Cornelius and Frank, 2015). Levy Economics Institute research contributes to the growing debate about loan forgiveness by simulating the effects of student debt cancellation on the economy using two macroeconomic models: the Fair Model and Moody's model (Fullwiler et. al, 2018). The cancelation of student debt is defined by both forgiveness of all outstanding student debt issued by the government and financing of privately-owned student loans. Due to increased economic activity, cancelation of student debt would be followed by an increase in GDP by as much as $1.08 trillion over a 10-year period, a decrease in the average unemployment rate by 0.36 percent and the creation of up to 1.55 million new jobs per year. The negative effects of the policy include a negligible increase in inflation by 0.3

percent and an increase of 0.25 to 0.4 percentage points to long-term interest rates. Research concluded that debt cancellation is a feasible policy, that, if implemented, would have a positive economic and social effect on the economy.

CHAPTER II: OVERVIEW OF FEDERAL FINANCIAL AID

The mission of the Office of Federal Student Aid, administered by the U.S. Department of Education, is to guarantee "access to equal educational opportunities for every individual" (Department of Education Organization Act, 1979). Each year, more than $150 billion are distributed to students through loans, grants and work-study programs (College Board, 2018). In this chapter, I discuss the history of financial aid, its structure and the evaluation of its structure over time.

2.1.History of Financial Aid

The history of financial aid is characterized by an unsystematic variety of developments. Using student debt as our lens, its unique nature of being an otherwise positive source of aid is sharply contrasted with the reality of dire consequences being placed on the shoulders of naïve youth. This section provides useful insights into the evolution of financial aid, that has evolved from local philanthropical acts into a convoluted federal system that allows millions of individuals today to pursue a postsecondary education.

In 1643, Anne Radcliffe Mowlson donated the first scholarship endowment to be used to cover the cost of education of students who were admitted and could not afford an education at Harvard University (Thelin, 2011). The students were not expected to

pay back the donated money but were asked to pray in return for the good fortune placed unto them. The concept of charitable scholarships expanded to other elite universities, such as Yale, The University of Pennsylvania, Princeton, and William and Mary. Philanthropic support was the primary financial support for similarly situated students until 1838 when Harvard established the first lending agency offering zero-interest loans to its students. In support of "young men of ability to [earn] an education, when their families are not able to help them, seems a peculiarly judicious and useful charity…" (The Harvard Advocate, 1877).

Harvard University was a pioneer in establishing the new system of student financial aid, that was quickly adopted by universities across the states and served as a precedent for federal government loan programs (Fuller, 2014). A program the federal government hoped in the future would extend this “peculiarly judicious and useful charity” across the nation to be utilized by citizens who bravely and courageously stood to protect their country.

The Servicemen’s Readjustment Act of 1944, better known as G.I. Bill, provided funding to cover the cost of higher education to WWII veterans and was the first government program to offer financial support to students (Fuller, 2014). In a decade, nationwide enrollment in higher education institutions increased from 1.15 million students to 2.45 million, with veterans accounting for nearly half of all students (Synder, 1993). Since the enactment of the G.I Bill, there has been exponential growth in student enrollment and accessibility of higher education across the country.

Under the G.I. Bill, U.S. Congress formed the Special Committee on Labor and Public Welfare with a Select Committee to Investigate Educational, Training and Loan

Guaranty Programs. The investigation detected 258 institutions that did not meet the up-to-date standards of a higher education program compatible with providing effective education (Fuller, 2014). The major issues noted were institutional quality and unjustifiable price. In 1952, the Veteran's Readjustment Assistance Act extended assistance to Korean War veterans. Contrary to the Act of 1944, financial aid was granted to students enrolled in institutions approved by the committee and guaranteed to provide the effective education needed for the veteran's future success (Thelin, 2011). These approved institutions met the specific quality benchmark set out by the committee.

The National Defense Act of 1958 created a federal lending system, that offered loans to students talented in mathematics, science, engineering, and foreign languages in furtherance of the never-ending goal to outpace the scientific advancements occurring behind the Iron Curtain (Flemming, 1960). With the successful launch of Sputnik, the United States government quickly shifted its previously outdated academic curriculum to meet the needs of national defense in light of this new, cosmic age. The Act manifested the government's permanent involvement in higher education and declared education to be a compelling and necessary national interest of the utmost importance. By 1964, the number of students increased to 5.28 million (National Center for Education Statistics, 1993). Finally, in 1965, the Higher Education Act opened loans to students in all areas of study and permitted the establishment of private student loans (Fuller, 2014).

Meanwhile, with the increase in enrollment and financial aid, tuition prices steadily increased each year. Each university and college had its own process to distribute

scholarship funds among the students. Regrettably, this process of distribution could not always be characterized as "fair." The most famous price-fixing scandal involves The Overlap Group of 1958 among Ivy League schools (Matlock, 1994). The partnered institutions exchanged the financial aid information of their applicants to adjust their scholarship offers to “neutralize the effect of financial aid so the student may choose among Ivy Group institutions for non-financial reasons” (United States v. Brown University). The universities recklessly believed that by cooperating with other schools they ensured the admission process would be solely merit-based and the awarded funds would be distributed fairly among the largest possible number of eligible students. In essence, by removing competition between universities or offering a too attractive package to any one student, thereby unnecessarily shrinking a scarce resource, universities hoped to distribute the money to a wider pool of students, who themselves would choose their respective universities for non-monetary reasons due to this policy. The Overlap Group was operating for nearly three decades, setting the same price for mutually accepted students. After two years of investigation, the Justice Department filed a lawsuit, accusing the institutions of collusion and violation of the Sherman Anti-trust Act. The universities, with the exception of the Massachusetts Institute of Technology, settled before the trial, MIT refused to settle. The court ruled in favor of the United States and concluded that by setting the same financial aid to mutually admitted need-based students, the institutions eliminated price competition and could set excessive tuition, thus, violated anti-trust laws.

2.2. The Structure of Federal Student Loan Programs

Federal aid can be separated into three categories: federal grants, the funds awarded to students that are don't have to be repaid; work-study programs, which provide part-time employment on campus for students with financial need; and federal loans, which are repaid after grace period with interest (Federal Student Aid, 2017).

To apply for any type of federal aid, a student has to fill out a Free Application for Federal Student Aid (FAFSA), providing evidence of financial need and enrollment in an eligible degree program. (Federal Student Aid, 2017). Upon completion, the student receives a financial aid reward letter from the colleges and universities student is accepted to, that outlines the eligibility for every type of federal aid and net price of attending the institution.

The federal government administrates four grant programs. The description of each program is outlined below:

1. Federal Pell Grants: are funds awarded to undergraduate students with exceptional financial need (Federal Student Aid, 2017). The maximum annual award varies and is determined each year. For the 2018-19 school year, a student could receive up to $6,195. Nearly all funds are distributed to students, whose annual household income is less than $20,000. The grants are provided to every eligible student
2. Federal Supplemental Educational Opportunity Grants (FSEOG): are provided to the undergraduate students with the greatest financial need (Federal Student Aid, 2017). The limit is $4,000 per year. Each participating institution receives a limited amount to be distributed among awarded students

3. Teacher Education Assistance for College and Higher Education (TEACH) Grants: recipients are awarded up to $4,000 a year and are required to teach in eligible subjects in schools in low-income areas for four-years upon completion (Federal Student Aid, 2017).Students can be awarded TEACH grant for only approved programs of study
4. Iraq and Afghanistan Service Grants: are grants awarded to students who are not eligible to apply for Pell Grants and whose parents or guardians died in the course of events of 9/11. The maximum amount awarded cannot exceed $6,095 (Federal Student Aid, 2017).

The Federal Work-Study Program is designed for students with financial need, the funds are not automatically awarded, but have to be earned through a part-time job (Federal Student Aid, 2017). Students are responsible for finding an eligible part-time job on- or off-campus. The program aims to provide valuable work experience and an extra source of income without diminishing chances of receiving other federal grants. The earnings that come from work-study jobs, if limited to the amount awarded, are excluded from the calculation of the amount of federal aid the student is eligible for the following year.

The majority of student loans in the United States are direct loans made by the Department of Education and are guaranteed by the federal government. The William D. Ford Federal Direct Loan Program was created by the Higher Education Amendments of 1992 to reduce credit constraints of individuals wishing to pursue advanced degrees. Within the program, there are four types of loans available:

1. Direct subsidized Stafford loans are federal loans, which are available to eligible undergraduate students who can demonstrate financial hardship. The majority of

subsidized loans are awarded to students whose families' annual income does not exceed $50,000 (Federal Student Aid, 2017). The Financial Aid office determines the eligibility of the individual student and the amount that can be borrowed based on the student's Free Application for Federal Student Aid (FAFSA). The maximum amount that can be borrowed in subsidized loans depends on the student's year in school. Freshman can borrow up to $3,500; sophomores, $4,500; junior and beyond can borrow up to $5,500 in one year. Further, students cannot accrue more than $23,000 in direct subsidized Stafford loans throughout their undergraduate studies. The interest on the loan is paid by the government as long as the individual remains enrolled in the program.

2. Direct unsubsidized Stafford loans are federal loans that are available to both undergraduate and graduate students, regardless of student's financial need (Federal Student Aid, 2017). The total aggregate loan limit amounts to $31,000. Graduate students are eligible to borrow up to $20,500 annually. Borrowers themselves are responsible for the interest that accumulates during in-school periods, after graduation, during deferment, and/or forbearance without any aid of the government.

Under Direct unsubsidized and subsidized Stafford loans, the individual is eligible to apply to direct Stafford loans for 150 percent of the length of the college program in which the student is enrolled (Federal Student Aid, 2017). For example, if the student attends a 4-year undergraduate program, he is eligible to borrow six years' worth of loans. Interest rates are the same for both subsidized and unsubsidized loans and set by Congress each year. Rates have varied historically between 8.25% in 1998 to 3.37% in 2005. The

current APR for undergraduate loans is 4.45% and 6.00% for graduate loans (Smole, 2013). There are additional 1.066% loan fees charged to the aggregate total.

3. PLUS, Loans are federal loans that are available to parents and graduate students to cover any education costs that are not covered by other financial aid instruments (Federal Student Aid, 2017). The students must apply for the maximum amount of unsubsidized direct loans before being eligible to apply for additional funding through PLUS Loans. Unlike Stafford Loans, the repayment for PLUS Loans begins 60 days after the loan is fully disbursed. The loans are automatically put into deferment while the student is enrolled in the program and for six months after the student stops attending at least half-time or graduates, however, interest still accumulates during this period. As of the 2018-19 academic year, PLUS loans have a fixed interest rate of 7.6% and an additional 4.264% in loan fees.
4. Federal Perkins Loans are school-based federal student loans that are limited to individuals who can demonstrate exceptional financial need (Federal Student Aid, 2017). Eligibility is determined by the university based on funding available and varies on a case-by-case basis. Students apply for this loan, unlike those previously discussed, directly to the university and the program is administered by individual universities. An undergraduate student may qualify to borrow up to $5,500 each year, while a graduate student may be able to borrow up to $8,000. The interest rate is fixed at a rate of 5% for the entire life of the loan.

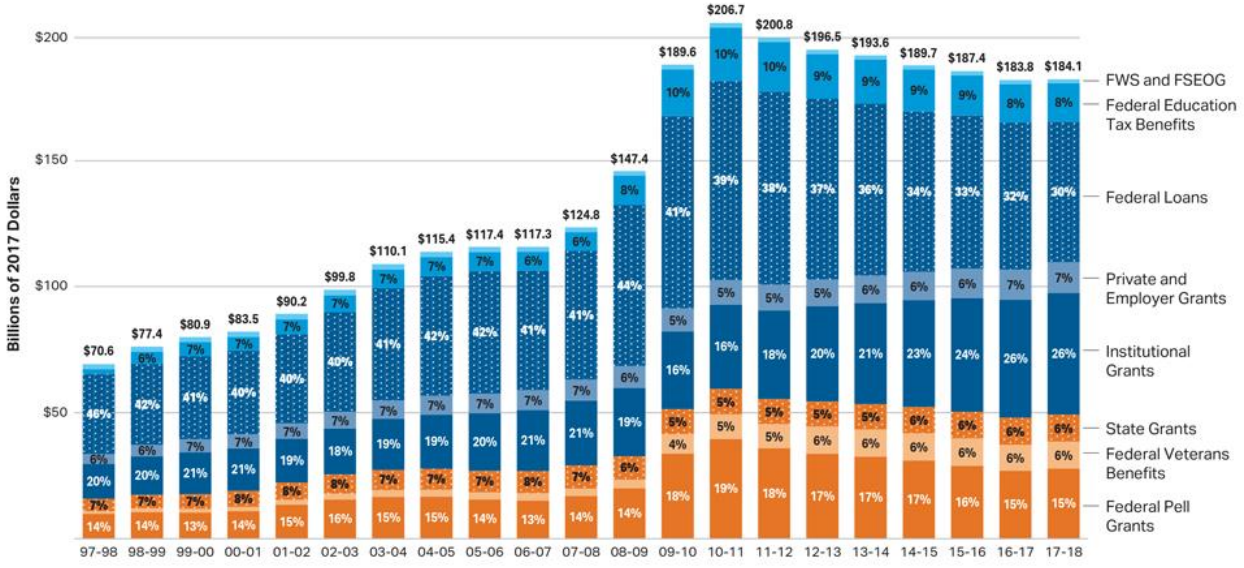
Borrowers are able to consolidate federal student loans into one loan with a fixed interest rate based on the average of the interest rates on the loans being consolidated (Federal Student Aid, 2017). By consolidating loans, students may lower monthly

payments by extending the length of the repayment period. However, interest will still accumulate.

Repayment of federal student loans begins after a grace period of six months (Federal Student Aid, 2017). The standard repayment plan is to be paid over a period of 10 years but may be extended up to 25 years for individuals with high debt burdens. Payment on loans may be interrupted in the case of deferment or forbearance. Individuals who re-enroll in school, become unemployed, join the military or the Peace Corps also qualify for a deferment. Forbearance allows individuals to defer payments for up to one year if they can prove financial hardship or plan to perform national service.

2.3. Trends in Federal Aid

Figure 8. Financial Aid distribution by Type, 1997-2017



Source: College Board, "Trends in Student Aid 2018"

Figure 8 shows the distribution of the government expenditures to full-time undergraduate students by type over the period 1998 through 2018. The rapid increase in federal aid across the aid categories can be partially explained by increasing enrollment, but most of it is a direct consequence of the change in federal government policy. Over two decades, the government has more than doubled the federal aid to undergraduate students, the government resources devoted to higher education expanded from $70.6 billion (2017 dollars) to $184.1 billion in 2017. Despite the rapid increase of institutional grants, which have increased by $10.4 billion since 2012, the federal loans program still dominates total financial aid to students. In 2017, federal loans constitute 30 percent of federal aid for undergraduate students and 66 percent for graduate students.

CHAPTER III: WHY EDUCATION IS SO EXPENSIVE

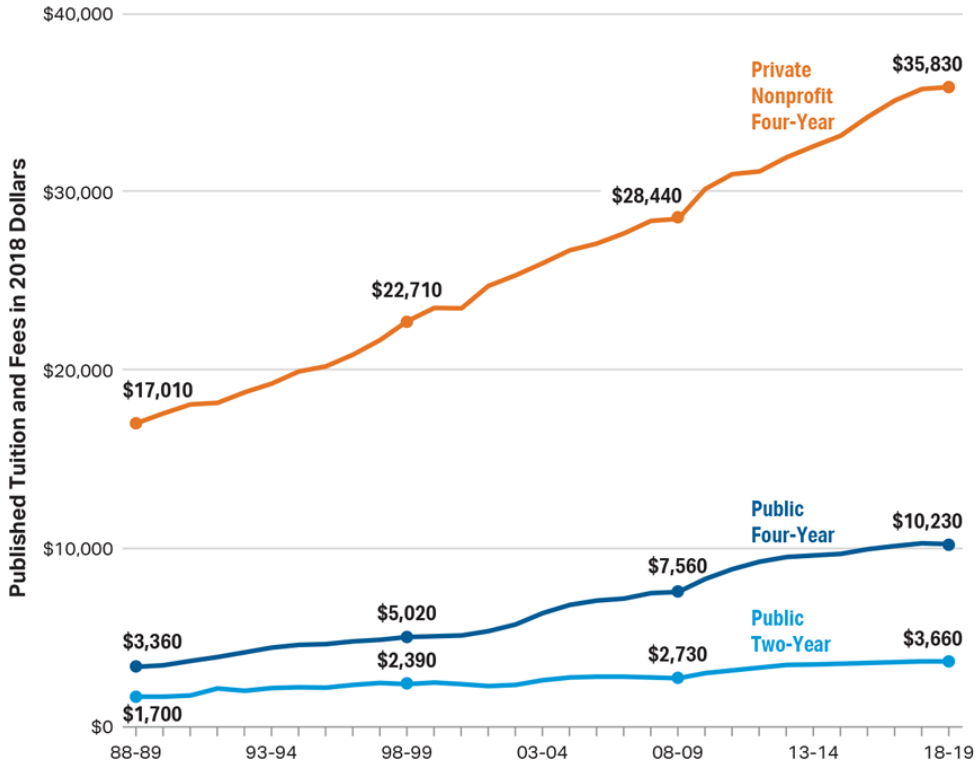
The inflation of higher education, discussed earlier, incentivizes the new generation of students to pursue credentials to be valuable in an increasingly competitive labor market. In this chapter, after stating the trends in tuition and fees, I discuss the research literature on the drivers of the rising cost of education with special attention to the effectiveness of financial aid programs and the relationship between financial aid and tuition.

3.1. The Trends in Tuition and Fees

In evaluating the trends in tuition, it is important to distinguish between gross, or "sticker" price: the price that is annually published by the universities and the net price – the price that accounts for grants and scholarships. Due to price discrimination, it is important to evaluate both gross and net prices.

Figure 9 shows the trend in rising tuition and fees across different types of institutions over twenty years, based on the institutions' published figures during those periods and adjusted for inflation. Including the rent, according to College Board's "Trends in College Pricing 2018" report, the average tuition, fees, and room and board are estimated to be $21,370 a year for a four-year undergraduate degree, which brings the total cost of attendance to $85,480. In contrast, the average annual cost to attend a four-year private institution in 2018 is $48,510, which adds up to $194,040 for an undergraduate degree.

Figure 9. Publishes Tuition and Fees 1988-2018 (2018 Dollars)



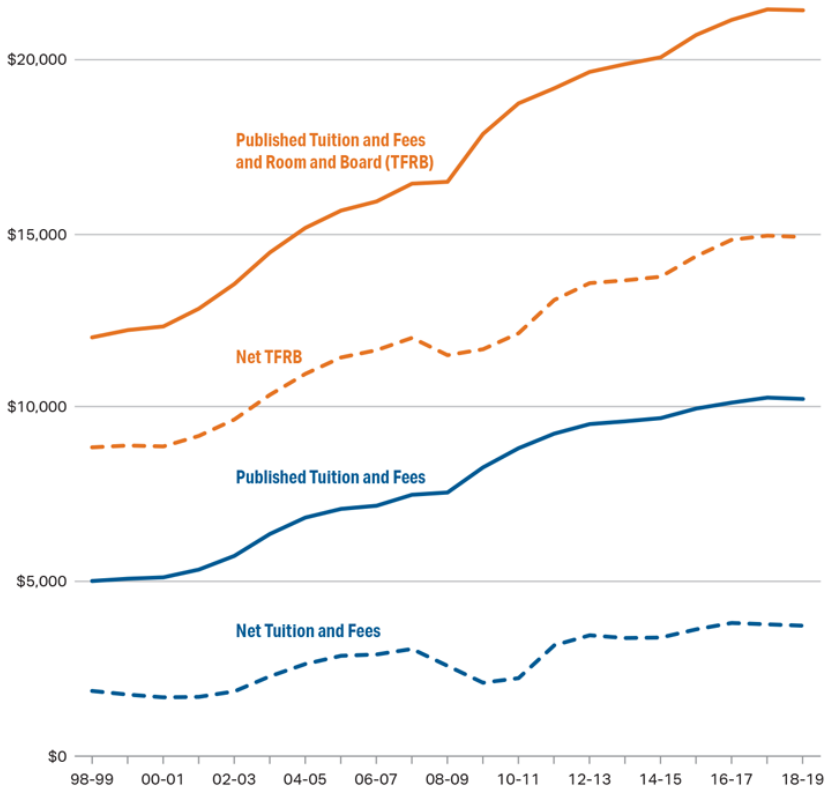
Source: College Board, "Trends in College Pricing 2018"

In 1998, the average undergraduate degree was valued at $48,000, adjusted for inflation. In a period of twenty years, the price of an education at a four-year public institution has almost doubled, even after adjusting for inflation (College Board, 2018).

In 2015, 85 percent of full-time students receive grant aid or scholarship to help them cover the cost of attending the higher education institution (U.S. Department of Education, 2018). The fact that the gross price has significantly increased does not necessarily denote that college became less affordable, the increase in grand aid, on average, could offset the increase in tuition. College Board defines the net price as the average gross tuition and fees subtracting net of federal Pell Grants, Federal Supplemental

Educational Opportunity Grants, state grants, institutional grants, private and employment grants, and federal tax benefits (College Board, 2018).

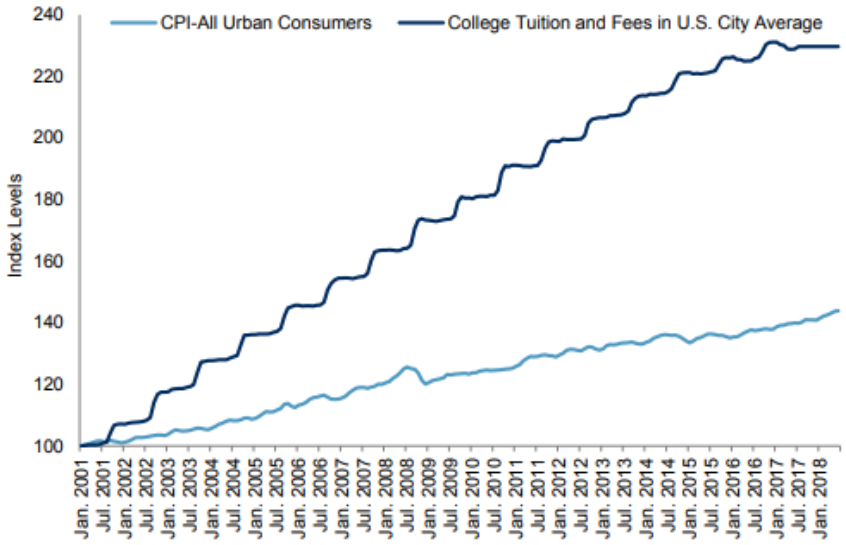
Figure 10. Published and Net Tuition and Fees in public institutions



Source: College Board, "Trends in College Pricing 2018"

Recall Figure 10, which shows the net price for a student attending public four-year universities. In 2018, the full-time in-state students at public four-year institutions, on average, are expected to cover approximately $14,900 a year after accounting for grant aid. After accounting for grant aid and inflation, we still see an increase in the cost of attendance and rising financial burden for students. In the last decade, the net tuitions/fees/room have increased by 168% for in-state students attending public universities and by 126% for students attending private non-profit universities (College Board, 2018).

Figure 11. College Tuition Inflation



Source: U.S. Bureau of Labor Statistics

Relatively speaking, the increase in college tuition and fees has outpaced inflation for years and the gap is widening. In the last thirty years, the cost of higher education has increased by 538%, compared to the runner-up, medical costs, which have increased by 286%, while the consumer price index has increased only by 121%. The majority of students justify going to college because they expect a high return on investment in the form of expected salary (Associated Press, 2015). According to the Federal Reserve Bank of St. Louis, the average annual growth in wages over the last twenty years equals 0.3%, meaning that the growth in tuition and fees is eight times higher than the average growth rate in wages (U.S. Census Bureau, 2017).

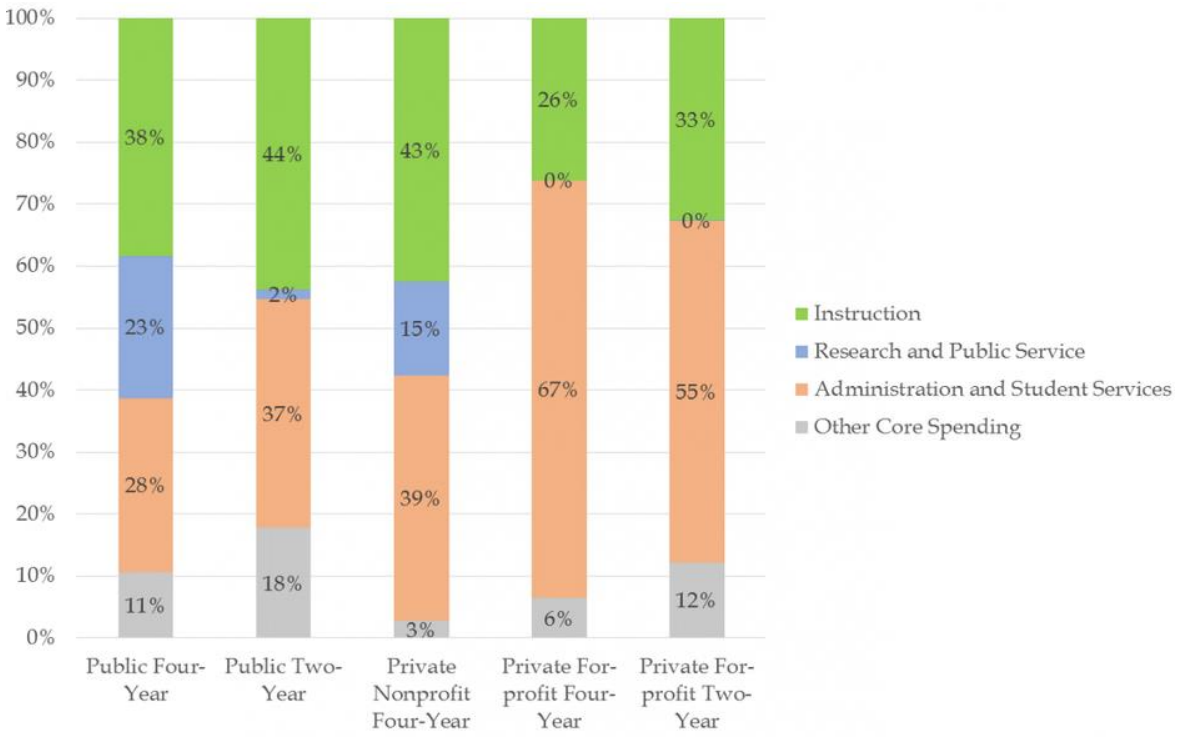
3.2. Drivers of Rising Tuition

A common explanation for rising tuition among economists is “cost disease,” the theory proposed by William Baumol, which explains why prices in some industries are

rising faster than inflation (Baumol, 2012). Throughout history, businesses were able to increase output through innovation, which led to an increase in productivity, and take advantage of economies of scale. Baumol points out that increase in productivity is not possible in several sectors of the economy, including performing arts and education. Rising wages in sectors that experience increases in productivity force the labor market of low-productivity sectors to increase wages as well. The example that is often cited is classical music: it takes the same number of individuals to play a Beethoven string quartet as it did two centuries ago, the productivity of musicians has not changed, while their real wages have significantly increased. In the case of education, since instruction of students is delivered by individuals with high academic credentials – the universities are forced to increase their compensation due to the rising opportunity costs and consequently increase the prices charged to students. While the cost disease phenomenon contributes to the increase in tuition, research found that the effects are often exaggerated. Based on the analysis of the spending at public research universities from 1987 to 2008, economist Robert Martin and Carter Hill estimated that the cost disease explains only sixteen percent of the total increase in higher education spending (Martin and Hill, 2014).

Research confirms that instruction expenditures constitute the minority of the costs incurred by the institution and only partially explain the larger problem (Brian and Mills, 2012). In recent years, there has been research published that suggests that universities and colleges are increasing administrative expenses, the funds that could have been used to benefit the academic pursuits of the students. This phenomenon is known as administrative bloat.

Figure 12. Distribution of Core Spending by Type of College, 2014-2015



Source: NCES Digest Tables 334.10, 334.30, & 334.50.

In 2018, an economist and professor at the University of Michigan, estimated that by eliminating 100 diversity administrators at UMichigan, the university could offer 765 full-tuition scholarships for students (Vedder, 2018). The driver for administrative bloat is the competition between institutions for students (Brian and Mills, 2012). In an effort to attract the brightest students and increase enrollment numbers, universities invest in new facilities, career assistance, health care services and counseling to create opportunities for students in the hopes these "comforts" will provide an incentive to enroll in their institution. The universities adopt new technologies and techniques to stay up-to-date, even if the old ways are cheaper. Further, colleges and universities are taking on debt to finance the new renovations. In the United States, universities owe $240 billion in municipal bonds, their

primary source of debt funding, up by 18 percent in the last five years (Marcus, 2017). The cost of debt and renovations are eventually passed to students through the gradual increase in tuition cost. The need for colleges to continuously increase enrollment contributes to the problem of increasing tuition and fees.

In his book, "Costs of Higher Education" (1980), Howard Bowen proposed the "revenue theory of cost." Bowen's theory aims to explain the financial decisions of a higher education institution. According to his theory, because the majority of institutions are non-profit, they do not possess the incentive to strategically budget their funds and, as the result, universities tend to focus on raising as much money as possible and then spending all the resources available to them. If the institution raises enough money to cover the expenses going towards educational objectives, they inevitably spend the residual on non-educational uses. Bowen also points out that during financial distress, universities will raise their revenue without cutting their current costs.

3.3 Price Discrimination in Higher Education

Price discrimination is a commonly known price strategy that is present in several consumer markets (Lawson and Zerkle, 2006). Based on economic theory, price discrimination allows companies to increase the trade gains and decrease the deadweight loss by identifying consumers with different price elasticities of demand and charging each group a different price for the same product or service (Pettinger, 2014). The classic example of price discrimination is plane tickets: the airlines charge different prices depending on the time of purchase, the amount of time spent at the destination and the day of the week. The purpose of price discrimination is to increase social welfare by making it possible for customers to purchase the product or service that they otherwise could not

afford. In a higher education context, price discrimination occurs through the availability of financial aid. To receive any form of financial aid, students are required to fill out the Free Application for Federal Student Aid, known as FAFSA, that requires them to provide detailed financial information and the list of the universities that the student is applying to(College Board, 2017). The information that the individual lists in the application is then used by colleges to determine what type and amount of financial aid the student may qualify for. The institutions create a unique financial package for each individual student based on what the university perceives the student will be willing to pay for their services. In fact, the listed tuition price is largely an arbitrary number. The most elite private universities' tuition– Ivy League schools included – are the only institutions that are valued over $50,000 ("Best Value Schools", 2019), but, according to the National Association of College and University Business Officers, only 12 percent of students pay the sticker price (Clark, 2017). On average, the net price of attending a private institution after accounting for federal aid and institutional scholarships is $33,500 (College Board, 2015). The tuition discount rate for full-time freshman has increased from 38.6% in 2006 to 49.9% in 2016.

According to the 2017 Tuition Discounting Study, "about 89 percent of first-time, full-time freshmen received institutional grants in 2017-18, and the average grant award in 2017-18 covered 56.7 percent of tuition and fees, up from 55.3 percent in 2016-17" (Valburn, 2018). The discount rates, however, has a considerable variance across institutions. For example, contrary to private non-profit institutions, roughly half of the students enrolled in public institutions pay the full price. This presents a challenge during the application process: students do not know the net price of attending the university until they receive the admission decision. In behavioral economics, this phenomenon is known

as "anchoring." Nobel Prize economists Daniel Kahneman and Amos Tversky demonstrated that if customers are presented with a reference point, even if it is completely random, their perception of value will gravitate towards the reference point (Kamenetz, 2014). In the context of higher education, the students do not compare the offered financial package to the average net price (the information that is available online, but not widely advertised by the universities), but to the listed price, and thus may overestimate the value of the education. This phenomenon is especially common among students who are the first to go to college in their family. The study conducted by Hoxby and Avery (2013) shows that the high-achieving students who come from low-income families tend not to apply to selective colleges and universities. Institutions that would probably offer higher financial aid to the student and result in a lower net price than the net price of the less selective institutions that the student ends up attending. In their words, "these students exhibit behavior that is typical of students of their income rather than typical students of their achievement." At the same time, the volatility of the cost of education and price discrimination may discourage uninformed students from applying to college and opt to enter a workforce after graduating from high school.

The authors of *Market Power and price discrimination in the US market for higher education* performed an empirical analysis to determine the magnitude of the effect price discrimination has on private universities' tuition (Epple et.al., 2019). They concluded that the increase of $10,000 in family income yields in an increase of approximately $210 to $510 in private schools' tuition. The increase in one standard deviation of the student's academic performance decreases the tuition by an average of $920 to $1960. The institutions offer price discounts to minority groups to promote diversity in the classroom.

According to the research, the discount for minority students ranges from $110 at historically black colleges to as high as $5,750, controlling for other factors. The researchers argue that universities and colleges charge a premium to the students who can afford to pay more and thus "enhance quality by cross-subsidizing low-income high-ability students." Simply said, the burden of cost is transferred away from low-income families to affluent families. Their conclusion supports the research by economist Ian Fillmore, who by building the structural model of college pricing, argued the ability of the universities to have access to students' FAFSA information enhances the ability of institutions to price discriminate based on financial need (Fillmore 2016). Fillmore concluded that the current policy's main outcome is a significant increase in revenue, primary with the loss of to middle – and high-income households.

In *Mobily Report Cards: The Role of Colleges in Intergenerational Mobility*, the researchers used data from federal income tax returns and the Department of Education to produce publicly-available mobility reports that are aimed to help students to make better-informed decisions (Chetty et.al., 2017). Since higher education is viewed as a milestone to achieve the "American Dream", and move upwards in income distribution, the researchers were interested in finding out how colleges conciliate income inequality. Their findings highlight the limited access students with limited financial means have to the elite universities, the same universities that offer the highest rate of income mobility. Students are 77 times more likely to attend an Ivy League college if their parents are in the top 1% of the income distribution. According to the study, "only 3.8% of students come from the bottom quintile of the income distribution at Ivy-Plus colleges," that include the eight Ivy League schools, plus Stanford, MIT, University of Chicago, and Duke. Interestingly, the

small number of students from low- and middle- income families who do attend those universities have similar outcomes despite coming from what a lot of people would call disadvantaged background. Unfortunately, it is true that low-income students have slimmer chances of getting admitted to universities that have a high level of income mobility. As discussed previously, high-achieving students from low-income families tend to not apply to highly selective colleges. Further, highly-selective colleges tend to focus their recruitment efforts on students who attend private high schools- schools beyond the reach for low-income families. In *Paying the Price: College Costs, Financial Aid, and the Betrayal of the American Dream* (2016), the author Sara Goldrick-Rab eloquently describes higher education in the United States as "a vicious cycle of exclusion and adaption in which resources are unequally distributed in ways that preserve privilege [and that] helps to ensure that people from lower-class backgrounds stay behind."

The universities are in a unique position to price discriminate because of their comparatively more informed metrics. In short, universities don't have to guess like airlines who are faced with volatile demand. Universities are given the information that removes uncertainties and, consequently, maximizes profits and the financial flexibility of any applicant. Airlines set prices using sophisticated analytical tools to predict the individual characteristics and the ability of the individual to pay based on numerous factors. The universities are "given the ball," by being provided with detailed financial information that serves a basis to determine "the best financial aid package." Intuitively, the price discrimination in the higher education creates a system where the institutions increase their revenue by increasing tuition and charging more students who are willing to pay, while

also using the revenue generated from high-income families to subsidize the education for students who can demonstrate financial need.

3.4. Financial Aid and College Tuition

During the last decade, there were several critics of the government's intensive involvement in students' ability to finance their education. William J. Bennett, President Regan's Secretary of Education, argued that generous financial aid provided by the government is the reason why institutions are raising tuition costs. In the New York Times article (1987), entitled "Our Greedy Universities" he pointed out, that "in 1978, subsidies became available to a greatly expanded number of students. In 1980, college tuitions began rising year after year at a rate that exceeded inflation. Federal student aid policies do not cause college price inflation, but there is little doubt that they help make it possible.*"* The phenomenon is widely known as the Bennett Hypothesis and it is been debated for the last 30 years.

The hypothesis assumes that financial aid is a subsidy and, as such, raises demand and price charged for the service. Higher education is not a perfectly competitive market, as noted earlier, the players in the market do not have perfect information, (students tend to make irrational decisions) the universities and colleges do not produce homogenous services and the institutions have the power of setting prices to some extent and thus cannot be classified under the traditional definition of "price takers" (Archibald and Feldman, 2018). The relationship between tuition and demand for higher education is complex and the decades of the research surrounding the Bennett Hypothesis has produced polemical results. To help explain the controversial research findings, economist Andrew Gillen proposed the updated version of the hypothesis that

includes several refinements to the original Bennett Hypothesis that are critical to the understanding of the relationship between financial aid and tuition (Gillen, 2012). The first refinement states that different types of financial aid, due to their specifications, affect the cost of education differently. In his paper, *Introducing Bennett Hypothesis 2.0*, Gillen argues that financial aid that is restricted to low-income students does not provide institutions the incentive to increase tuition, " [it] just allow[s] those students previously priced out of the market to pay the prevailing tuition." This explains the lack of evidence of the Bennett Hypothesis in research that is focused on Pell grants. The second refinement states that tuition caps and price discrimination marginalize the link between aid and tuition. In his model, Gillen aims to provide evidence that tuition caps imposed by the federal and state governments limit the ability of public institutions to raise tuition and incentivizes schools to increase the quality of the incoming class. Increasing selectivity, which is perceived as increasing the quality of services provided, is one of the universities' objectives that are often contradicted with the objective of maximizing revenue. The third refinement incorporates Bowen's Rule discussed earlier and urges researchers to consider both static and dynamic consideration while evaluating the relationship between tuition and financial aid.

A recent study conducted by the economists at Reserve Bank of New York found evidence to support the Bennet Hypothesis, used a difference – in – difference analysis to determine the magnitude of increased tuition due to changes in financial aid policy (Lucca et. al., 2017). In 2007, the government raised the maximum amount that can be borrowed for federal subsidized loans by roughly $1,000, the limit on unsubsidized federal loans increased by $2,000. The changes in the policy, that otherwise has been

constant, has allowed researchers to use the natural experiment approach. Lucca et.al. conclude that for each additional dollar in subsidized student loans, the tuition increases by 60 cents and by 15 cents for unsubsidized loans. This study adds to the body of research that examines the effects of credit expansion. For example, Gordon and Hedlung (2016) found that the increase in the maximum amount that can be borrowed yields an increase in tuition. In *Accounting for the Rise in College Tuition,* the researchers looked at the net price of attending four-year institutions between 1987 and 2010. In that period, net tuition increased by 106 percent, while the college premium rose by only 24 percent. Their study concluded that the Bennett Hypothesis "can fully account for the tuition increase on its own." In their study, they examined if the supply-side theories, such as cost disease and change in state appropriations, have explanatory power and conclude that such theories have "little quotative impact."

Economists, Larry D. Singell and Joe A. Stone (2003), examined 71 universities and colleges from 1989 to 1996 to determine the effect of Pell grants, the largest need-based federal grant program, on tuition. They have found a positive correlation between the increase in tuition and the increase in Pell grants in private, selective universities. In fact, tuition rose by a greater amount than the increase in the grant amount itself. As far as the public institutions, in-state tuition in the period of time studied remained relatively constant and out-of-state tuition increased with the increase in financial aid, indicating that public institutions behave as private ones when it comes to out-of-state tuition.

Tuition is only one of the ways in which higher education institutions are able to capture the increase in federal aid. In *"The Road to Pell is Paved with Good Intentions:*

The Economic Incidence of Federal Student Grant Aid" Lesley Turner (2014) contributes to the discussion by measuring the impact of Pell Grants on institutional aid. Turner argues that institutions react strategically to increases in federal aid by decreasing their own grants and scholarships by an average of 12 percent, ranging from almost zero for public institutions to over 60 percent for selective non-profit institutions. Turner emphasizes the differences in institutions' reactions based on their type, contributing it to the differences in schools' objectives and market power. Private institutions are able to capture the majority of the increase in Pell Grants due to their selectivity and significant market power. This compliments the study conducted by Cellini and Goldin (2014), which showed that otherwise similar for-profit institutions, charge 78 percent more if they are eligible for financial aid- the amount that is roughly equal to the financial aid itself.

In 1993, Georgia established the HOPE (Helping Outstanding Pupils Educationally) Program that provides financial assistantship based on academic achievement in high school (Georgia Student Finance Commission, 2019). For qualified students that would like to stay in the state, the program pays up to 85 percent of their tuition. The middle class has benefited from this program the most. In, "How Do Financial Aid Policies Affect Colleges?", Bridget Long (2004) used the program as a natural experiment to quantify the effects of financial aid. Long found that institutions, especially private colleges and universities, responded to increase in financial aid by decreasing institutional scholarships. Some private colleges received up to 30 percent of the financial assistantship provided to students. Former President Bill Clinton used the model of the HOPE program to create parallel tax credit programs

which targeted middle-income families (Lanford, 2017). His proposal developed into several current programs that are currently provided by the Internal Revenue Service, including American Opportunity Credit (that allows student to get back up to $2,500 per student per year for the first four years of postsecondary education) and Lifetime Learning Credit (up to $2,000 per year). The qualification for these programs is determined based on the household income. The majority of the government funding for these programs are distributed among middle- and upper-middle income families. Nickolas Turner (2012), a Treasury Department economist, studied if the changes in the tax-based programs have any effects on tuition. Using student-level data, Turner showed that roughly four-fifths of the benefits received by students are passed to institutions through the reduction of institutional grant aid. Turner's findings complement the research conducted by Bridget Long. In her paper "The Impact of Federal Tax Credits for Higher Education Expenses" (2004), she argues that, in response to federal tax credit programs, the states decreased their appropriations and raised their prices, undermining the purpose of the policy.

The findings on the topic are far from reaching consensus. Numerous studies found no correlation or contradicting findings between federal aid and the increase in tuition. Michael McPherson and Morton Schapiro (1991) published a study entitled *"Keeping College Affordable: Government and Educational Opportunity,"* where they analyzed financial aid between 1979 and 1986. McPherson and Schapiro found that public institutions raised tuition by $50 for every $100 of financial aid. Private institutions, on the other hand, did not follow the same trend.

The majority of research is focused on Pell grants and the credit expansion of unsubsidized and subsidized loans for undergraduate students. Economist Robert Kelchen (2017) expanded the discussion among higher education economists by studying the effects of the increase in the limits of Grad PLUS Loans on law school expenditures. In his paper, he points out that since 2000, the enrollment in the professional schools has risen faster relative to undergraduate enrollment and the tuition prices have increased by the same rate as the undergraduate education. However, law students are faced with a higher debt burden: in 2012, on average, the law student graduated with over $140K in debt. Prior to the establishment of Grad PLUS, that allows graduate students to borrow up to the full price of attendance, individuals were only allowed to borrow up to $18,500 in federal loans. The study has found a negligible increase of one to two percent in tuition due to the availability of the loans. However, Kelchen pointed out that the lack of evidence of the Bennett Hypothesis may be due to the existence of a robust private loan market prior to the adoption of the policy, thus, students were not faced with credit constraints prior to 2006.

CHAPTER IV: EVIDENCE FROM MISSISSIPPI

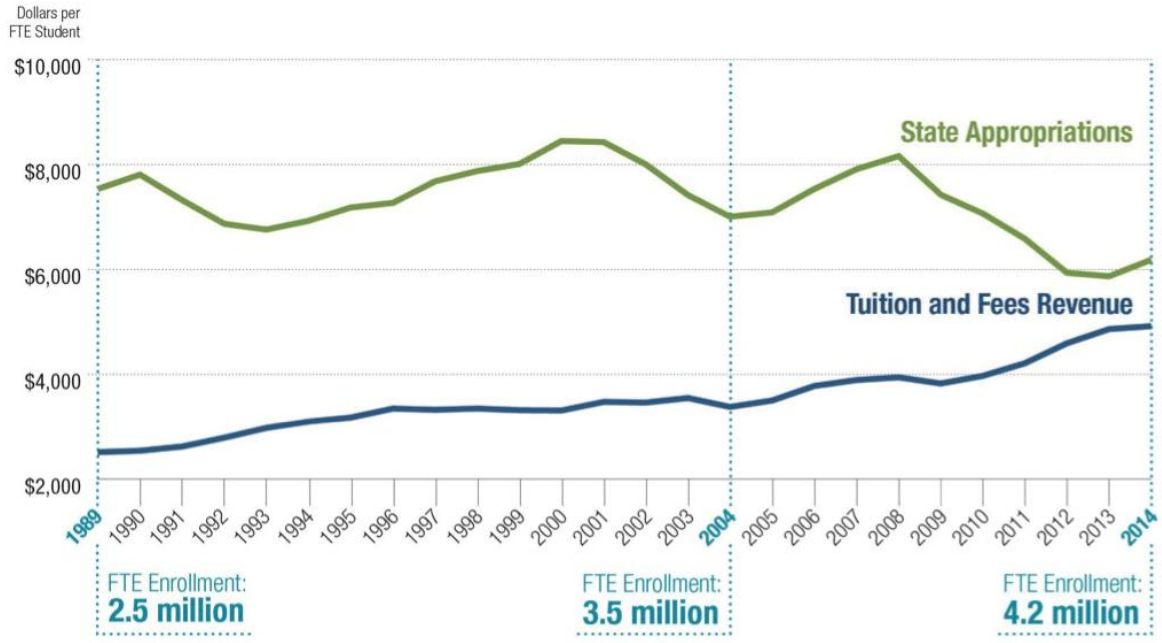
In addition to federal financial aid, each state implements its own state programs to contribute to the effort of making the higher education more accessible. In this chapter, I provide an overview of higher education and financial aid in Mississippi and conduct an th econometrics analysis to test the Bennett Hypothesis and examine the institutional reaction to the increase in different types of financial aid.

4.1 Financial Aid in Mississippi

The trends in the costs of higher education and enrollment in universities and community colleges in Mississippi are similar to national trends, discussed earlier. The state is a home for nine public universities and fifteen community colleges. In 1965, public universities enrolled 23,378 students, in the fall of 2018, nine public universities enrolled 81,000 undergraduate students, in addition to 72,000 enrolled in community colleges (Mississippi Institutions of Higher Learning, 2017). Similar to national trends, the overall enrollment in both public universities and community colleges has declined for the three consecutive years. According to Georgetown University Center on Education and the Workforce, 51 percent of jobs in Mississippi will require postsecondary education by 2020 (Carnevale and Smith, 2012). However, according to U.S. Census Bureau, in 2017, only 21.3 percent of Mississippi residents over age 25 held at least a bachelor's degree,

compared to 16.9 percent in 2000, higher than only two states: California and West Virginia. For the reference, the national average is 27.6 percent. To meet the demand for educated workforce, states create financial aid programs that are aimed to increase college affordability for its residents and degree attainment among high school graduates.

Figure 13. Tuition, fees and state appropriations, FTE Enrollment in southern states

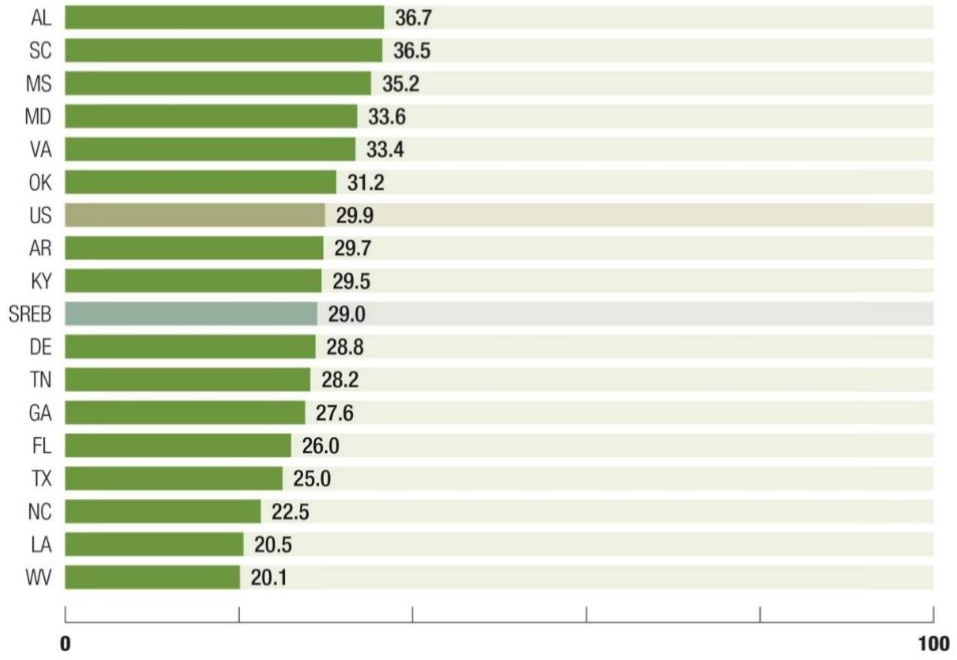


Source: State Higher Education Executive Officers Association, State Higher Education Finance FY 2015. SREB calculations by William Doyle, Higher Education Policy Institute

Similar to national trends, after the Great Recession, state appropriations significantly increased in the southern states, as demonstrated by Figure 13, taken from Higher Education Policy Institute (2014). In 1989, state appropriations were $7,535 per student, compared by $6,186 in 2014, inflation adjusted, while, the tuition and fees have increased by $2,473. After the recession, as SREB Commission on College Affordability in the South concluded, "the responsibility of paying for college has clearly shifted to students and families and away from the state." (Southern Reginal Education Board, 2016).

According to the Integrated Postsecondary Education Data System (IPEADS), for 2018-2019 academic year, average tuition and fees at Mississippi 4-year institution was $8,496 in-state and $14,936 out-of- state, up from $5,067 and $7,753 in 2011, respectively.

Figure 14. Percentage of family income needed to cover net price at public 4-year institution

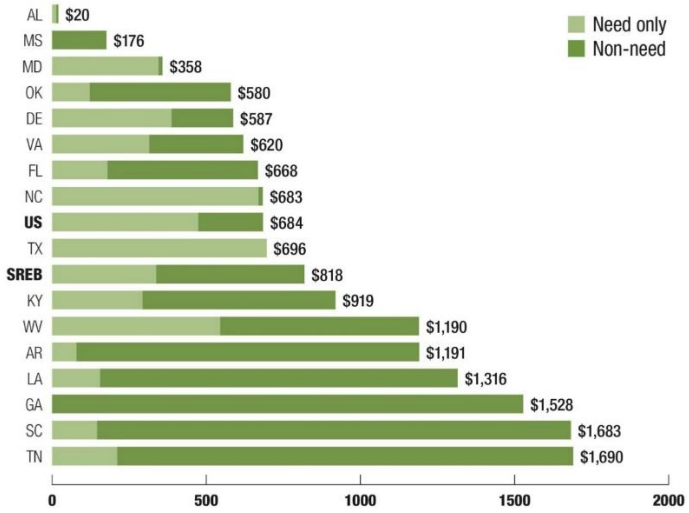


Source: U.S. Department of Education, 2006. Student Financial Aid Survey; U.S. Census Bureau, 2016 American Community Survey

As discussed earlier, published tuition is often not the price that majority of students pay to attend a postsecondary institution. The net price is often a better representation of affordability. Figure 14, demonstrates the percentage of family income needed to cover the net price of education in the southern states. The net price is calculated by subtracting federal and state financial aid from published tuition and fees. The Commission on College Affordability in the South defines affordability as "the relationship of the price required to attend higher education – or the net price – relative to family income." Thus, according to

the Figure 14, Mississippi's colleges are among the least affordable in the south. In Mississippi, on average, households spend 35.2 percent of income to cover the net price of attending college. The national average is 29.9 percent. (Southern Regional Educational Board, 2016).

Figure 15. State Financial Aid in the South



Source: National Association of State Student Grant and Aid Programs, 2014.

In the mid-1990s, the Mississippi Legislature created three financial aid programs "with the goal of increasing college enrollment and degree attainment among the state's high school graduates": the Mississippi Resident Tuition Assistant Grant (MTAG), the Mississippi Eminent Scholars Grant (MESG) and the Higher Education Legislative Plant Grant (HELP) (Allin, 2015). Figure 15, taken from National Association of State Student Grant and Aid Programs, compares state financial aid programs in the South. In 2014, Mississippi spent only $176 per student in state financial aid, the second lowest amount among the southern states. Interestingly, Mississippi is also the only state that does not

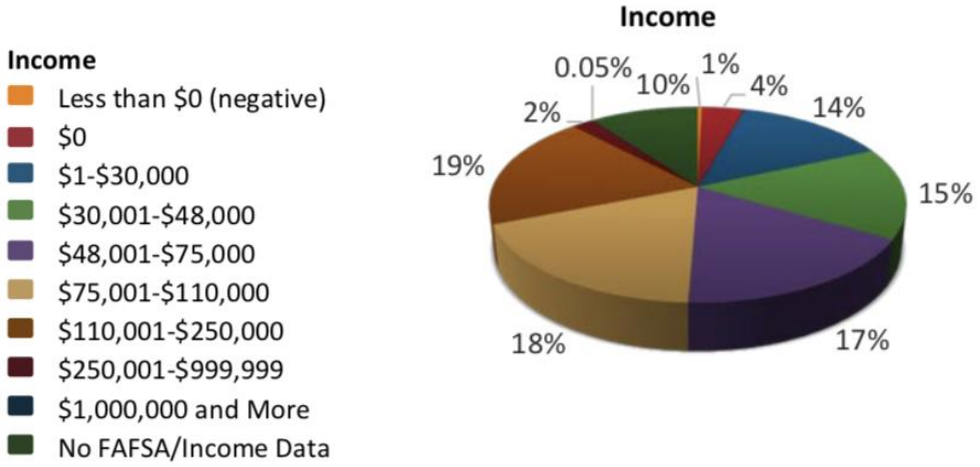
offer the financial aid that is based solely on financial need of individual. All other states have a combination of merit-based and need-based programs.

Mississippi Eminent Scholars Grant (MESG) was established to encourage talented high school students to continue their education in Mississippi (Allin, 2015). Eigible students are required to have an ACT score of at least 29 and GPA of at least 3.5 to qualify for a $2,500 award per academic year to attend one of the public in-state colleges. The students, who are eligible for MESG, are 10 percentage points more likely to attend a four-year university, two-thirds of the increase in enrolment comes from students who would otherwise attend community college

Higher Education Legislative Plan Grant (HELP) provides full tuition and fees for students who have an ACT score of at least 20 and high school GPA of at least 2.5 and whose family income is less than $36,500 (plus $5,000 for each dependent). It is the only state program that incorporates financial need in determining eligibility. The grant also requires students to complete a core curriculum determined in advance, which includes IHL College Preparatory Curriculum and one advanced elective (Mississippi Office of Student Financial Aid, 2017). In 2017, 2,912 students have received HELP, compared to 22,629 students awarded MTAG.

Mississippi Resident Tuition Assistance Grant (MTAG) awards eligible students $500 per academic year in the first and the second year of undergraduate degree and $1,000 in years three and four. (Mississippi Office of Student Financial Aid, 2017). To qualify for the grant, students need to have an ACT score of at least 15, the high school GPA pf at least 2.5 and be enrolled full-time in a public in-state institution. Students, who are eligible for the grant, are 6 percent more likely to attend a four-year university (Allin, 2015).

Figure 16. Income distribution of financial aid award recipients



Source: Institute of Higher Learning, Postsecondary Education Financial Assistance Board and Mississippi Office of Student Financial Aid "2017 Annual Report of the State-Supported Student Financial Aid Programs"

The criticism of Mississippi financial aid concerns the state's distribution of available funds. According to the 2017 report by the Mississippi Office of Student Financial Aid, the total amount awarded to students was $38 million, more than half of which went to students with no financial aid. (Mississippi Office of Student Financial Aid, 2017). "As the poorest state in the nation trying to pull up our neediest citizens, it's concerning that 50 percent of our funds are going to families whose children would most likely already be going to college and most likely already going to succeed in college," said Jennifer Rogers, director of State Student Financial Aid at MS Institutions of Higher Learning. (Davis, 2018).

Figure 16, taken from the annual report by Mississippi Office of Financial Aid, shows the income distribution of financial aid recipient, 18 percent of receipts come from families with household income of less than $30,000. Contrarily, 37 percent of students come from households with annual income over $75,000. For reference, in 2017, according to U.S. Census Bureau, the median household income in Mississippi was $43,529.

In the state that has one of the lowest median incomes, the effort of state financial aid programs should be concentrated on making education more affordable to students who otherwise would not be able to attend the postsecondary institutions. Senator David Blount, D-Hinds, during an interview for Mississippi Today, emphasized the demand for need-based financial aid programs but also pointed out that, "In the current budget climate, I don't think you'll see any dramatic increase in funding. Therefore, we need to prioritize programs that have the most impact" (Davis, 2018). Blount indicates the importance of increasing consideration of the HELP program, which he believes makes the biggest impact

The current eligibility for MTAG – the state's largest financial aid program – is one of the factors that contributes to the income distribution of financial aid awards. Students who are eligible for a full Pell grant are not eligible to apply for MTAG. The Office of Financial Aid suggested removing this restriction, but was rejected by the Mississippi Senate and House, citing the policy analysis that determined that the policy change would cost the state $28 million annually (Allin, 2015).

4.2. Empirical Part

The rising cost of postsecondary education is compensated with an increase in financial aid. The Bennett Hypothesis questions if the current structure of financial aid

helps institutions raise more revenue, rather than increasing college affordability. This study aims to test the Bennet Hypothesis and examine the correlation between federal financial aid and tuition in the state of Mississippi.

4.2.1 Data

The sample used in the empirical analysis is across 10 years, beginning in the 2007-2008 school year and ending in 2016-2017. The data comes from three different sources: The Integrated Postsecondary Education Data System (IPEDS), Title IV and Mississippi Office of Student Financial Aid. IPEADS is the most comprehensive dataset on higher education, including enrollment, intuitional characteristics and resources, admissions, degrees and certificates conferred, student persistence and success, institutional prices and student financial aid. Data is collected through surveys conducted with administrators of postsecondary institutions. IPEADS dataset does not distinguish between subsidized and unsubsidized loans, which is an important identification for the purposes of this study. Instead, Title IV data was used as the primary source for measuring federal loans and grants. Federal financial aid is distributed among students who are enrolled in Title IV programs. The office of the U.S. Department of Education provides an annual report of the number of recipients and total dollar amount of loans and grants distributed at the institutional level, including Pell Grants, federal subsidized and unsubsidized loans, work-study program, and Federal Supplemental Educational Opportunity Grants, which are variables used in this analysis. The data on state financial aid was taken from annual reports, published by the Mississippi Office of Student Financial Aid. State financial aid was available across eight years, beginning in 2009 and ending in 2016.

4.2.2. Model Specifications

To establish the correlation between financial aid and tuition, I regressed the log of amount of different types federal aid (Subsidized and Unsubsidized Loans, Pell Grants, Work and Study, Federal Supplemental Educational Opportunity Grant) and Mississippi's state financial aid (MTAG, MESG, HELP) on the log of published in-state and out-of-state tuition:

$$\textbf{log Tuition}_{it} = \lambda + \beta\ \textbf{logFederalFinAid}_{is\,(t-1)} + \gamma\ \textbf{log StateFinAid}_{iv(t-1)} + \delta_i + \varphi_{t\,+\,}\varepsilon_{it}\ ,$$

where *i* denotes the institution, *t* is a year, *s* is a type of federal financial aid and *v* is the type of state financial aid.

Since I am looking at the federal aid across 26 institutions in Mississippi over 10 years, I am dealing with panel data, also known as cross-sectional time-series data. There are several challenges to be considered before running the regression. Due to the imperfect data, it is likely that the regression does not include all the variables that have explanatory power. For example, the prestige of institution may affect tuition, but is difficult to measure and include in regression. If there are variables that have explanatory power, but are not included in the regression, in that case, then the effects of omitted variables may be attributed to the variables that are included in regression. In the case of this study, the correlation between federal aid and tuition may be overstated due to endogeneity bias in the form of omitted variable bias. In an effort to mitigate omitted variable bias, I used a fixed effects model. Institutional fixed effects (δ_i) control for the differences in observable and unobservable characteristics across institutions, such as quality or prestige. An important assumption of the fixed effects model is that characteristics, that are controlled

for, are unique for each institution. Thus, the error term and constant are different for each institution, this assumption is evaluated by Hausman Test. H = 210.966 with p-value = prob (chi-square (5) > 210.966) = 1.27824e-043, the null hypothesis that the random effects model is consistent is rejected in a favor of fixed effect model. To control for time-specific fixed effects, for example, changes in demand for higher education, I included time dummies (φ_t). To check if there are time effects in the data, I used a Wald joint test on time dummies and with p-value = 3.35034e-091, rejecting the null hypothesis that there are no time effects. I demonstrated the difference made by controlling for time effects by providing the model with and without including time dummies (Appendix A and B).

The decision to include lagged dependent variables in my model was justified by the expectation that institutions react to an increase in financial aid the subsequent academic year, as tuition is determined by universities before students receive their financial aid. For reference, I have included models without lagged variables in the appendix.

The test on normality of residual distribution indicates that the residuals have a skewed distribution. To address this issue, I used logs of dependent and independent variables. Using logs also allows me to interpret the results as a percentage change.

Finally, because of the indication of autocorrelation by a Durbin-Watson test and a concern for possible heteroscedasticity in a panel dataset, I used robust standard errors.

4.2.3. Results

In the first model, I regressed log federal financial aid on the log of published in-state tuition and out-of-state tuition in the second model. The joint test on named regressors

indicate that at least one variable has an explanatory power of dependent variable. The first model indicates two statistically significant independent variables: Pell Grants and Work Study. Interestingly, Pell Grants have a positive correlation with in-state tuition, while work-study program has a negative one. The positive significant relationship between Pell Grants and instate tuition is consistent with the research papers, discussed earlier. For example, studies by Singell and Stone (2007), Rizzo and Ehrenberg (2004) find a positive correlation between Pell Grants and tuition. The findings are consistent with the Bennett hypothesis: the institutions increase tuition in an attempt to capture the additional funds that are available for students. Notably, the positive correlation is not significant for out of state tuition, see Appendix C. The results are supported by the findings of Rizzo and Ehrenberg (2004). They suggest that the lack of correlation between out-of-state tuition and financial aid can be attributed to the reasoning behind the increase in the out-of-state enrollment. Universities see an increase in out-of-state enrollment as a sign of an increase in quality, rather than revenue. Rizzo and Ehrenberg provide additional evidence in support of their theory. According to their study, colleges decrease tuition when the quality of high school students, determined by standardized tests, decreases in their states. In the 2016-17 academic year, 63 percent of Pell Grant recipients had zero family expected contribution (College Board, 2018). It is possible that students who qualify for Pell Grants prefer to attend in-state institutions that have a lower cost of attendance. That would explain why we see positive correlation between Pell Grants and in-state tuition but not out-of-state tuition. Individual-level data is needed to evaluate this hypothesis and unfortunately, it is currently not available.

The first model also indicates that there is a negative correlation between Work-Study program and in-state tuition. The negative correlation may be attributed to the design of the program: the funds awarded to eligible students are not applied directly to tuition, but instead are earned through part-time employment and is based on hours worked. Federal Work Study recipients fill part-time jobs that otherwise would have been paid by the university and thus decrease institutions' expenses.

In regard to out-of-state tuition regression, the results indicate a positive correlation with subsidized loans and negative one with unsubsidized loans. Recipients of subsidized loans are required to show a financial need and are provided with loans with favorable interest rates paid by the government during a grace period. Students, who exhaust their limits on subsidized loans, are able to receive additional funds through an unsubsidized loan program. The subsidized loans effect witnessed in the regression is consistent with previous research. Specifically, Lucca et.al (2017), concluded that institutions captured 65 percent of the increase in subsidized loans and, less statistically significant, the increase due to unsubsidized loans. In my model, it is surprising to see the negative effect of unsubsidized loans. I suspect that this phenomenon may be explained by the desire of Mississippi institutions to compete with other institutions and attract out-of-state students.

In model 3, I regressed the log of state financial aid on the log of published in-state tuition. The results indicate that there is a positive correlation between MESG and in-state tuition. MESG is a state program that aims to incentivize talented Mississippi high school students to pursue their academic career in-state and limited to students who do not qualify for Pell Grants. As stated earlier, the majority of funds go to students from affluent families.

The universities are able to capture some of additional aid that is awarded to students and is consistent with the Bennett Hypothesis.

4.2.4. Limitations of Findings

In an effort to understand the effects of financial aid on tuition, researchers found ambiguous evidence due to limitations in data. The prime variable of interest to determine college affordability is the net price of attending a higher education institution but due to price discrimination, students receive financial aid on a case-by-case basis. Thus, the net price varies significantly across students who attend the same institution. The available data does not allow for accurate measurement of changes in net prices. The individual level data, if available, would allow future researchers to have more robust findings that would provide a better understanding of institutional responses.

The second limitation of the findings is the challenge to establish causality due to endogeneity bias. In this case, it is possible that there is a reverse causation: financial aid may increase in a response to an increase in the price of higher education. The other form of endogeneity bias is omitted variable bias. To address the issues, I used fixed effects and time dummies in my models. However, fixed effects have their own limitations. If the omitted variables are time-sensitive, the regression may still suffer from endogeneity bias. The further research is required to address the limitations of the findings.

CONCLUSION

This paper was largely motivated by my interest in understanding the drivers behind the rising cost of education in the United States. In the past four-decades, the cost of postsecondary education nearly tripled. With the increase in tuition, the federal aid, including loans and grants, increased simultaneously. In a process of reauthorization of Higher Education Act, it is crucial to understand the relationship between federal aid and tuition. The findings of Lucca et. al (2017), Gordon and Hedlung (2016), Singell and Stone (2003), Turner L. (2014), Long (2004), Turner N. (2012) present some evidence to support the Bennett Hypothesis, indicating that the financial aid policy partially contributes to the increase in the cost of education and the rising balance of student loans. However, the research is not conclusive due to existing data limitations and methodological challenges. The individual-level data, if available, would allow researchers to conduct a much robust analysis and add further insights of a subject in question.

In the final chapter, I conducted the empirical analysis of federal and state financial aid programs in the state of Mississippi. I found a positive correlation between Pell Grants and tuition-in-state, subsidized loans and tuition out-of-state, consistent with existing research. In addition, I found a positive correlation between state program MESG and tuition-in-state. However, the results were found to vary based on model specification due to data limitations and omitted variable bias. Further research is required to conclude the causal link between two.

BIBLIOGRAPHY

"HOPE" (2019). Georgia Student Finance Commission, Programs and Regulations.An official website of State of Georgia. Retrieved from: https://gsfc.georgia.gov/hope

"Scholarships at Harvard" (1877). Harvard Advocate. Vol. 23, Cambridge, MA.

airline-price-discrimination/
Archibald, R. & Fedman, D. (2018*). Drivers of the Rising Price of a College Education. Midwestern Higher Education Compact*.Minneapolis, MN.

Associated Press (2015) "Understanding the Rising Cost of Higher Education" Best Value Schools Online. Best Value Schools Retrieved from: https://www.bestvalueschools.com/understanding-the-rising-costs-of-higher-education/

Associated Press (2016) *"Should College Be Free?"* New York Times Online. The New York Times Retrieved from: https://www.nytimes.com/roomfordebate/2016/01/20/should-college-be-free

Associated Press (2019). "Student Debt: A Current Picture of Student Loan Borrowing and Repayment in the United States" Nitro College. Retrieved from: https://www.nitrocollege.com/research/average-student-loan-debt
Baumol W. & Bowen W. (1966). *Performing Arts, The Economic Dilemma: A Study of problems common to theater, opera, and dance*. MIT Press, Cambridge, MA.

Baumol W.J. (2012). *The Cost Disease: Why Computers Get Cheaper and Health Care Doesn't*. Yale University Press.

Bennett W. (1987) *Our Greedy Colleges.* The New York Times. Retrieved from: https://www.nytimes.com/1987/02/18/opinion/our-greedy-colleges.html.

Best Value Schools National Universities. (2019). U.S. News& World Report. Retrieved from https://www.usnews.com/best-colleges/rankings/national-universities/best-value?_sort=tuition&_sortDirection=desc&tuitionMin=42000

Blagg K. (2018*). Underwater on Student Debt: Understanding Consumer Credit and Student Loan Default*. Research Report. Urban Institute.

Bowen W., Chingos M., McPherson M. (2009). *Crossing the Finishing Line: Completion College at America's Public Universities*. Princeton University Press, Princeton, NJ.

Bowen, H. (1980). *The costs of higher education: How much do colleges and universities spend per student and how much should they spend?* The Carnegie Council series. Jossey-Bass Publisher.

Brand JE. (2010). *Civic Returns to Higher Education: A Note on Heterogeneous Effects*. Soc Forces, 89(2):417-433.

Bureau, U.S. Census. Real Median Household Income in the United States [MEHOINUSA672N], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/MEHOINUSA672N, 2017

Bureau, U.S. Census. (2018) 2013-2017 American Community Survey 5-Year Estimates. Retrieved from: factfinder.census.gov.

Burning Glass. (2014). *Moving the Goalposts: How Demand for a Bachelor's degree Is Reshaping the Workforce.*Analysis Report, Boston, MA: Burning Glass Technologies.

Carnevale A. & Smith (2012). N. A *Decade Behind: Breaking Out of Low-Skill trap in the Southern Economy*. Georgetown Center on Education and Workforce.

Carnevale A., Smith Nicole, Gulish A. (2018). *Women Can't Win: Despite Making Educational Gains and Pursuing High-Wage Majors, Women Still Earn Less than Men.* Georgetown University Center on Education and the Workforce.

Cellini S. and Goldin C. (2012). *Does Federal Student Aid Raise Tuition? New Evidences on For-Profit*".National Bureau of Economic Research, Working Paper no. 17827.

Chetty R., Friedman J., Saez E., Turner N., Yagan D. (2017), "Mobility Report Cards: The Role of Colleges in Intergenerational Mobility", NBER Working Paper, National Bureau of Economic Research, Cambridge, MA.

Choi J., Strochak S., Goodman L., Ganesh B. (2019). *Millennial Homeownership: Why Is It So Low, and How Can We Increase It?* Research Report. Urban Institute.

Clark, K. (2017) *Only 12% of Private College Students Actually Pay Those Crazy-High Tuition Prices. Here's Why*. Media, Meredith Corporation, Retrieved from: http://money.com/money/4777909/private-college-scholarships-2017/

College Board. (2018). *Trends in College Pricing 2018*. Analysis Report. Retrieved from: https://trends.collegeboard.org/sites/default/files/2018-trends-in-college-pricing.pdf

Complete College America (2014). *Four-Year Myth: Make College More Affordable. Restore the Promise of Graduating on Time*. Analysis Report, Complete College America.

Corbally, John E. (1981). *Costs of Higher Education*. Journal of Education Finance, vol. 7, no. 2, 1981, pp. 232–234.

Cornelius L. & Sharon A. (2015*) Student Loan Debt Levels and Their Implications for Borrowers, Society, and the Economy*. Journal Article, Educational Considerations, Vol. 42, No.2.

Department of Education Organization Act (1979). Public Law 96–88, Approved Oct. 17, 1979, 93 Stat 669.

Doyle C., Finney J., Harvey, D. (2014). Affordability of Pubic Higher Education in SREB States. Southern Regional Education Board.

Epple, D., Romano, R., Sarpça, S., Sieg, H. and Zaber, M. (2019). *Market power and price discrimination in the US market for higher education*. The RAND Journal of Economics, 50: 201-225.

Federal Reserve Bank of New York (2018) "Non-Housing Debt Balance" chart at "Household Debt and Credit Report. Retrieved from: https://www.newyorkfed.org/microeconomics/hhdc.html

Federal Reserve Bank of New York (2018). Quarterly Report on Household Debt and Credit. Retrieved from: https://www.newyorkfed.org/microeconomics/hhdc.html

Federal Student Aid (2017). *Federal Student Aid at a Glance.* Office of the U.S. Department of Education. Handout.

Federal Student Aid (2018). Official Cohort Default Rates for Schools. Official Three Year Cohort Default Rates for Postsecondary Schools. The Office of the U.S. Department of Education. Retrieved from: www2.ed.gov/offices/OSFAP/defaultmanagement/cdr.html.

Federal Student Aid (2018). *Understanding Delinquency and Default*. Retrieved from: studentaid.ed.gov/sa/repay-loans/default.

Federal Student Aid (2018). Understanding Repayment: Income-Driven Plans. Retrieved form: https://studentaid.ed.gov/sa/repay-loans/understand/plans/income-driven

Fillmore, I. (2016) *Price Discrimination and Public Policy in the U.S. College Market.* Employment Research 23(2): 5-6.

Flemming, A. S. (1960). *The Philosophy and Objectives of The National Defense Education Act*. The ANNALS of the American Academy of Political and Social Science, 327(1), 132–138.

Fuller, M. B. (2014). *A History of Financial Aid to Students*. Journal of Student Financial Aid: Vol. 44: Iss. 1, Article 4.

Fullwiler S., Stephanie Kelton S., Ruetschlin C., and Steinbaum M. (2018) *The Macroeconomic Effects of Student Debt Cancellation.* Levy Economics Institute.

Gillen, A. (2012) *Introducing Bennett Hypothesis 2.0.* Center for College Affordability and Productivity, Washington, DC.

Goldin C. & L. (2007). *The Race between Education and Technology: The Evolution of U.S. Educational Wage Differentials, 1890 to 2005*.NBER Working Paper No.12984, National Bureau of Economic Research, Cambridge, MA.

Goldrick-Rab (2016). *Paying the Price: College Costs, Financial Aid, and the Betrayal of the American Dream*. Chicago: University of Chicago Press.

Gordon G., Hendlund A. (2016) *Accounting for the Rise in College Tuition.* NBER Working Paper no. 21967, National Bureau of Economic Research, Cambridge, MA.

HotPads. (2018). "How Long Does It Take to Save for a Down Payment?" HotPads Blog. Retrieved from: http://hotpads.com/blog/save-for-down-payment/

Hoxby C.& Christopher Avery C. (2012) *The Missing "One-offs": The Hidden Supply of High-Achieving, Low-Income Students*. NBER Working Paper No.18586, Cambridge, MA: National Bureau of Economic Research.

Hoxby,C. & Avery, C. (2013). *The Missing "One-Offs": The Hidden Supply of High-Achieving, Low-Income Students*. Brookings Papers on Economic Activity.

Jaschik S., Lederman D. (2017). *2017 Survey of College and University Admissions Directors*. Report by Inside Higher Ed and Gallup.

Kamenetz, A. (2014). *How Private Colleges Are Like Cheap Sush*i. Higher Ed, NPR, Retrieved from: https://www.npr.org/sections/ed/2014/07/08/329889370/how-private-colleges-are-like-cheap-sushi

Kampelmann S., Rycx F., Saks Y., Tojerow I. (2018) *Does education raise productivity and wages equally? The moderating role of age and gender*. IZA Journal of Labor Economics.

Kisida, B. & Mills J. (2010). *Administrative bloat at American universities: the real reason for high costs in higher education*. Goldwater Institute policy report no. 239. Retrieved from: http://goldwaterinstitute.org/sites/default/files/Administrative%20Bloat.pdf.

Lanford M. (2017) *The political history of the Georgia HOPE scholarship program: a critical analysis"*, Policy Reviews in Higher Education, 1:2, 187-208.

Lawson, R. & Zerkle, A. (2006). *Price Discrimination in College Tuition: An Empirical Case Study*. Journal of Economics and Finance Education. v. 5, 2006.

Lochner, L. & Moretti E. (2004). *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports.* American Economic Review, 94 (1): 155-189.

Long B. (2004). *How Do Financial Aid Policies Affect Colleges? The Institutional Impact of the Georgia HOPE Scholarship*. Journal of Human Resources 39 no.4 p.1045-66.

Long B. (2004). *The Impact of Federal Tax Credits for Higher Education Expenses*. Chicago, IL: University of Chicago Press.

Lucca D., Nadauld T. & Shen K. (2017) *Credit Supply and the Rise in College Tuition: Evidence from the Expansion in Federal Student Aid Programs*. Federal Reserve Bank of New York Staff Report no.733.

Ma J., Pender M. & Welch M. (2016) *Education Pays 2016: The Benefits of Higher Education for Individuals and Society*. The College Board Report.

Marcus, J. (2017). *Why Colleges Are Borrowing Billions*. The Atlantic Online. The Atlantic. Retrieved from: https://www.theatlantic.com/education/archive/2017/10/why-colleges-are-borrowing-billions/542352/

Martin, Robert E., and Hill, R. Carter (2014). *Baumol and Bowen Cost Effects in Research Universities* .Available at SSRN: https://ssrn.com/abstract=2153122

Matlock T. (1994). *The Overlap Group: A Study of Nonprofit Competition*. Journal of Law and Education. Vol.23. no.4.p523-47.

McPherson, M., Schapiro M. (1991). *Keeping College Affordable: Government and Educational Opportunity*. Brookings Institution Press, Washington, DC.

Mirowsky J.& Ross C. (2003). *Social Causes of Phycological Distress. Social* Institutions and Social Change Series. New York, NY. Taylor&Francis.

Mississippi Institutions of Higher Learning (2017). *2017 Fall Enrollment Fact Sheet* Office of Strategic Data Management Retrieved from: http://www.mississippi.edu/research/downloads/MAC2018NEW.pdf

Morgan J. & Steinbaum M. (2018). *The Student Debt Crisis, Labor Market Credentialization, and Racial Inequality: How the Current Student Debt Debate Gets the Economics Wrong.*Roosevelt Institute.

Murdock S., White S., Hoque N. Md., Pecotte B.,You X., Balkan J. (2002).*The Texas Challenge in the Twenty-First Century: Implications of Population Change for the Future of Texas.* The Center for Demographic and Socioeconomic Research and Education.

National Association of Realtors (2017) *Student Loan Debt and Housing Report 2017: When Debt Holds You Back.*Research Department and American Student Assistance.

National Center for Educational Statistics (1993). 120 Years of American Education: A Statistical Portrait. U.S. Department, Office of Educational Research and Improvement.

Pettinger, T. (2014). *Airline price discrimination*. Economics Help. [online] Economicshelp.org. Retrieved from: http://www.economicshelp.org/blog/7767/business/

Rutledge M., Sanzennbacker G., Vitagliano F. (2018). *Do Young Adults with Student Debt Save Less for Retirement*. Working Paper, Center for Retirement Research of Boston College.

Scott-Clayton J. (2018). *The looming student loan default crisis is worse than we thought*. Evidence Speaks Reports. Vol.2, no.34.

Singell, L. & Stone, J. (2003). *For Whom the Pell Tolls: Market Power, Tuition Discrimination, and the Bennett Hypothesis*. University of Oregon Economics Working Paper No. 2003-12.

Smole D.(2013).*Federal Student Loans Made Under the Federal Family Education Loan Program and the William D. Ford Federal Direct Loan Program: Terms and Conditions for Borrowers*. U.S. Dept. of Education. Office of Federal Student Aid, FFEL Variable Interest Rates;and CRS Report R40122.

Synder, T. (1993). *120 years of American education: A statistical portrait*. Washington, D.C.: National Center for Education Statistics.

The University of Mississippi. (2018). *2018-2019 Mini Fact Book.* Institutional Research, Effectiveness and Planning.

Thelin J. (2011). *A History of American Higher Education.* Johns Hopkins University Press, Baltimore, Maryland.

Turner N. (2012). *Who Benefits from Student Aid? The Economic Incidence of Tax-Based Federal Student Aid*. Economics of Education Review 31, no.4.

Turner, L. (2014). *The Road to Pell is Paved with Good Intentions: The Economic Incidence of Federal Student Grant Aid.* Working Paper. Retrieved from: https://www.econ.umd.edu/sites/www.econ.umd.edu/files/pubs/Turner_FedAidIncidence.pdf

U.S. Department of Education. (2018).The Condition of Education 2018. Sources of Financial Aid. National Center for Education Statistics.

Valburn, M. (2018). *Tuition Conundrum*. Inside Higher Ed. Retrieved from: https://www.insidehighered.com/news/2018/04/30/nacubo-report-finds-tuition-discounting-again

Vedder, R. (2018) *Diversity and Other Administrative Monstrosities: The Case Of The University Of Michigan*. Forbes Online. Forbes. Retrieved from: https://www.forbes.com/sites/richardvedder/2018/07/23/diversity-and-other-administrative-monstrousities-the-case-of-the-university-of-michigan/#6baa57fd68ec

Velez E., Woo J. (2017). *The Debt Burden of Bachelor's Degree Recipient.* Stats in Brief, U.S. Department of Education, NCES 2017-436.

Appendix A

MODEL 1. FEDERAL FINANICAL AID				
Variables	**OLS estimates**	**Fixed Effects (1)**	**Fixed Effects (2)** With year dummies	**Fixed Effects (3)** With year dummies
	In-state tuition	In-state tuition	In-state tuition	Out-of-state tuition
Constant	**12.5509*** (0.932016)**	**7.22755*** (1.41290)**	**8.03329*** (0.586845)**	**6.81412*** (2.18949)**
l_Subsidized Loans (lagged)	**-0.639515*** (0.154872)**	**-0.138129*** (0.0480938)**	−0.0162571 (0.0245752)	**0.209152** (0.0990502)**
L_Unsubsidized Loans (lagged)	**0.681175*** (0.166042)**	**0.152218*** (0.0471029)**	0.00801958 (0.0257542)	**−0.181724* (0.0840933)**
L_Pell Grants (lagged)	**-0.652031*** (0.0641804)**	**0.197355*** (0.0334763)**	**0.0670552* (0.0341611)**	0.133847 (0.158184)
L_Work and Study Program (lagged)	**0.436752*** (0.0966050)**	**-0.147941* (0.0850314)**	**−0.0531678** (0.0199512)**	−0.136208 (0.104346)
Federal Supplemental Educational Opportunity Grant (lagged)	0.0250452 (0.0886937)	-0.0231781 (0.0676363	0.0243956 (0.0299133)	0.112402 (0.106082)
Dum2009			−0.354973*** (0.0239360)	−0.260594** (0.116451) **
Dum2010			−0.329070*** (0.0236962)	−0.230174 (0.102141)
Dum2011			−0.296972*** (0.0309566)	−0.0950860*** (0.158519)
Dum2012			−0.232235*** (0.0162018)	−0.239532*** (0.0628574)
Dum2013			−0.184397*** (0.0132927)	−0.166120*** (0.0540211)
Dum2014			−0.113834*** (0.0123257)	−0.113456*** (0.0200520)
Dum2015			−0.0803873*** (0.0105175)	−0.0768300*** (0.0211518)
Dum2016			−0.0496388*** (0.00830157)	−0.0497507*** (0.0143905)
Number of observations	227	227	227	227
R-squared	0.750814	0.253104	0.879645	0.301635

*** statistically significant at 1% level
**statistically significant at 5% level
*statistically significant at 10% level

Appendix B.

MODEL 2. STATE FINANICAL AID				
Variables	OLS estimates	Fixed Effects (1)	Fixed Effects (2) with year dummies	Fixed Effects (3) With year dummies
	In-state tuition	In-state tuition	In-state tuition	In-state tuition
Constant	**12.0715*** (1.53895)**	**7.75876*** (0.491324)**	**8.57193*** (0.251383)**	**7.92338*** (1.00438)**
L_MTAG (lagged)	**−0.808909*** (0.199006)**	−0.0211389 (0.0337800)	−0.0194969 (0.251383)	−0.0224109 (0.0245950)
L_MESG (lagged)	**0.385723*** (0.122324)**	0.0190342 (0.0145459)	**0.0277606*** (0.00974269)**	**0.0339317*** (0.0100964)**
L_HELP (lagged)	**0.234703*** (0.0505340)**	**0.0729173*** (0.00712018)**	−0.000784881 (0.100255)	−0.00597486 (0.00783835)
l_Subsidized Loans (lagged)			-	−0.0383624 (0.0286223)
L_Unsubsidized Loans (lagged)			-	0.0291941 (0.0260603)
L_Pell Grants (lagged)			-	0.0302248 (0.0737261)
L_Work and Study Program (lagged)			-	−0.0326384 (0.0323291)
Federal Supplemental Educational Opportunity Grant (lagged)			-	**0.0607299** (0.0283875)**
Dum2011			−0.264737 (0.0376299)	−0.303820*** (0.0400770)
Dum2012			−0.221450 (0.0293588)	−0.230327*** (0.0334787)
Dum2013			−0.170136 (0.0187888)	−0.172262*** (0.0223833)
Dum2014			−0.110138 (0.0170091)	−0.105722*** (0.0163246)
Dum2015			−0.0746012 (0.0128878)	−0.0696112*** (0.0120438)
Dum2016			−0.0409866 (0.0105481)	−0.0388899*** (0.0100989)
Number of observations	158	158	158	158
R-squared	0.5072	0.7168	0.847402	0.863197

*** statistically significant at 1% level

**statistically significant at 5% level

*statistically significant at 10% level